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THE JOURNAL OF LAND & PUBLIC UTILITY ECONOMICS

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Location of Industry

By STEPHEN HELBURN*

A BRIEF review of the immediately available literature on the location of industry leads the writer to the conclusion that a more realistic approach to the problems of industrial location is needed. Certain inadequacies in the present theories are significant.

It has been pretty well established that while one can ignore the "laws" of the location of industry, he cannot escape their effects. However, the corollary of this

proposition (that successful industries are properly located) gives a misleading *ex post facto* sanction to the existing geo-effects. However, the corollary of this graphic pattern of industry. For instance, geographers and economists speak of inertia as a factor that tends to locate industry, or rather to *keep* it located, where it is. They speak of it but they underestimate it. Inertia is not purely a matter of personal somnolence: actually, it may be more profitable for a manufacturer to remain in an improper location because the cost of abandoning an old plant and building a new one may be so great as to impose a four or five per cent charge on operations in perpetuity. Some industries have so great a fixed capital that it would be virtually impossible to move at all.

Industrial migration, of course, rarely takes the form of actual plant relocation. The new businesses entering the field merely take the better locations, putting themselves into a stronger competitive position. Then, according to pure industrial theory, the older factories with higher costs or inferior products are driven to the

*This paper was written by the late Stephen Helburn in connection with his work for the Land Committee of the National Resources Planning Board. (Mr. Helburn was the staff member of the National Resources Planning Board who prepared the report on *Public Land Acquisition: Part II, Urban Lands*, February, 1941.) It was used as the basis for discussion by the members of that Committee and Mr. Helburn was encouraged to publish it. Before he could put it into final form, he died in September, 1942. His brother, Nicholas Helburn, was urged to revise and edit the manuscript. This he has done in the spirit of the author, altering the original as little as possible. However, certain modifications and condensations were deemed advisable by the editors of the *Journal*, and these are indicated by appropriate footnotes. In the original manuscript, Mr. Helburn acknowledges "brief but encouraging talks with Dr. Proudfoot of the Census and Dr. Means of the Planning Board."

wall. The only trouble with this is that industrial theory is no purer than the industrialists who practice it. Cartels and price-fixing agreements are not unknown; a factory with a monopoly of a certain process may survive for years in a poor location; and a vigorous executive or promoter may establish and maintain a business in a perfectly irrational place.¹ The process of natural selection works slowly; and competition in the modern economy is far from perfect. This tends to perpetuate the *status quo* and to check migrations to the best locations.

A second criticism of location theory today is that economists and geographers do not have a sufficiently comprehensive view of industry and the industrial process. As far as I can discover, the usual method of analysis is to take an industry with which one is familiar, search out the locating factors, and then generalize this list into a Theory of Location. This does not make for a comprehensive analysis. The next step is to take the list of factors and verify it by applying it to a number of fairly localized industries. Here the analysis breaks down again because the analyst doesn't know enough about enough industries. It seems to me axiomatic that, before one can evaluate the locational effect of geographic factors, he must know not only where those factors are but also how important they are to the productive process of that particular industry. For example, I have always been told that, in the manufacture of steel, iron moves to coal because the coal needed is twice as expensive to transport. I have recently discovered that this is not always true; in some cases the coal moves to the

iron. It depends on the grade of the coal and the richness of the iron ore.

Another deficiency of this *modus operandi* is that usually the importance of location factors in industries which are not highly localized is forgotten or neglected. The classic examples of industrial location are steel, shoes, automobiles, glass, pulp and paper, mining, lumbering, retail merchandising, and so on: all localized. But baking, printing and publishing, canning, building construction, cement, and wholesaling, which are spread all over the economic map, are just as obedient to equally definite laws of location.

The indiscriminate use of the word "location" is the basis of my third criticism. It seems to me that there are three different forms of "location," and that we ought to distinguish among them. For the purposes of this discussion, I propose to use *orientation*, *location*, and *site* as more or less precise terms, and (where confusion is likely to arise) *placement* as the general term.

I would define *orientation* as placement with reference to some feature of the economic landscape; a transportation route, for example, or a source of raw materials, or a market. Orientation does not necessarily imply definite placement in space, but rather placement in the presence of some desirable or essential economic phenomenon. Orienting industry to a navigable waterway gives it countless possible positions and does not reveal the area nor the particular spot where the factory should be located.

Within the orientation, *location* means placement in an area or region where all the essential factors of production exist or to which they can be brought at something approaching the most favorable terms. Shipbuilding is oriented to the seacoast; placement on the sea is the pri-

¹ E.g., the location of aluminum manufacturing at Manitowoc, Wisconsin, was not the result of any particular advantages which the community offered for such manufacturing. A man experienced in aluminum happened to settle there and develop an industry.

mary consideration outweighing all others. But there are thousands of miles of shore line; so, within that orientation, let us assume that a shipyard locates at Baltimore because there is labor, cheap transportation to the inland sources of steel, a deep harbor with good port facilities, and a fairly central position with regard to the rest of the Atlantic Coast. Baltimore need not be the place of lowest cost for all these items, but the sum of the costs must compare favorably with those of Bath, Portsmouth, or Brooklyn.

Location, then, puts a fairly tight spatial limitation on the placement of an industry. Within the location, the *site* is the particular piece of land on which the industry finally settles. Our shipyard, having decided to locate in the Baltimore area, may choose a site at Sparrows Point, where land is cheap, where a street-car line provides easy transportation for workers, where the ground is solid enough to hold large buildings, and where it seems that local government taxes will remain low.

Classification of Location Factors

The fourth criticism of location theory (and the probable cause of the confusion mentioned under the second criticism) is that location factors have not been logically classified nor weighted.

A typical list of location factors runs something like this: influence of raw materials; influence of the market; suitable labor supply; cheap transportation; climate; presence of other industries; advantages of an early start; inertia, and so on. It would seem more logical to classify locating factors according to the elements or to the parts of the productive process they affect.

In its simplest terms, industry consists of taking things, doing something to them, and passing on the products to

someone else. Agriculture takes land and seed and weather, applies labor to them, and passes on wheat or cotton. Manufacturing may take the wheat or cotton, apply power, machinery and labor, and produce flour or cloth. The merchant takes the flour and cloth, breaks them up into handy packages, makes them available near your home and sells them to you, the ultimate consumer. Or some other manufacturer may process them further to make bread or underwear.

Production cost, then, has five elements: (1) the cost of raw materials (including process materials) delivered to the factory door; (2) the cost of the labor necessary to process them; (3) the cost of the power necessary to process them; (4) the overhead, and the indirect and miscellaneous charges against the production; and (5) the cost of getting the product to the consumer. My proposal is to attempt to relate the placement of industry to these five elements. As a safety-valve, however, we should add another element: (6) non-economic or irrational elements of placement of a given industry.²

The locational pull of any item or factor in the production process depends on

² The author did not elaborate this factor as he did the other five. For purpose of completeness it should be pointed out that men are not always guided by purely economic factors and forces. In the past many industries have been located in a given city for purely personal, accidental or irrational reasons. Note the following: "If one thousand Wisconsin manufacturers were asked why they chose a given community for the location of a factory, about 90 per cent of them would say that it just happened. Most manufacturers have built their plants in their home cities because they lived there and not because of any detailed consideration of the advantages and disadvantages of alternative places. Where conditions were favorable, or where the product and management were such that success came irrespective of location, these factories survived and expanded. Otherwise, they gave way to competing establishments in more fortunate locations." See Edwin M. Fitch and Ruth L. Curtiss, *Industrial Trends in Wisconsin*, University of Wisconsin Bulletin #1674 (1933), p. 23.

two things; its availability measured in terms of mobility (and ubiquity) and its importance to the production process. Obviously, if a commodity or good is completely ubiquitous (like air), or if it has almost complete mobility (i.e. transfer cost is a negligible fraction of value), it has no locating effect. If, on the other hand, the cost of a material is a small enough part of the production cost (such as the cost of the porcelain in a pair of false teeth, or the benzoate of soda in a bottle of ketchup), its locational pull will be zero.

Let us briefly consider first the mobility and ubiquity, and second, the importance in production of the elements of production as they relate to a few selected industries.

(1) *Raw Materials.* For the extractive industries, the principal raw materials are absolutely immobile. When it is not ubiquitous, a given raw material has an absolute locating effect. Iron mining must be done where the ore is located; oil wells must be drilled in the petroleum fields; and fish must be taken from the lakes, rivers or seas. Land, the raw material of agriculture, is immobile but is—to a limited extent—ubiquitous. The best land, however, or even good land, is not ubiquitous, and good land has a locating pull similar to that of the best mines or the best fishing grounds.

After being extracted or divorced from land, raw material is mobile and will have a placing or locating effect proportionate to the cost of transfer and the amount used in production. It is in this connection that Weber's concept of "ideal weight" becomes important. An industry using a raw material that undergoes great refinement or weight loss in production will tend to locate near that raw material to save transportation charges. Conversely, an industrial process that increases the

bulk or weight of the finished product over the bulk or weight of its raw materials will tend to locate as near the ultimate destination as possible. To express this relationship, Weber cooked up his so-called "material index" of a productive process:

$$\text{Index} = \frac{\text{No. of Units} \times \text{Unit Transfer Cost (of each raw material)}}{\text{No. of Units} \times \text{Unit Transfer Cost (of finished product)}}$$

If the index is less than 1, the tendency is to locate near the market; if the index is greater than 1, the pull is in the direction of the raw materials; and if the ideal weight of any one material (the number of units \times unit transfer cost) is greater than the sum of all the rest of the ideal weights, the tendency (other costs being equal) is to locate at the source of that raw material.

The aluminum industry needs so much power for its reduction process that it is placed near the giant hydro-electric developments of the St. Lawrence. The pulling effect of the power (measured in terms of the most completely mobile substitute—coal) outweighs all the other factors in the process, orienting and locating the industry to the power. Similarly, the glass industry is oriented to the natural gas available in western Pennsylvania and Ohio, for an equivalent amount of coal would out-pull all other factors. Other cases of location induced by raw materials are the placement of pulp and paper manufacture near the forests and the orientation of steel manufacture to the transport route between the iron mines and the coal fields. Market-orientation due to transport costs will be considered more fully under section (5), Marketing.

As a group, the primary conversion industries tend to be oriented to raw materials more closely than any other manufacturing. Smelting, refining and reduc-

tion processes that take their materials raw from the earth and produce the steel, wood, glass, paper, and copper have a higher material index, a higher weight loss, use fewer hours of labor and more coal or power per ton of product than the manufacturing and assembling industries which take a partly processed product and make an even more refined product.

(2) *Labor.* In the past, labor has been considered more or less immobile by both economists and entrepreneurs. The last few years have seen this assumption disproved spectacularly. All of this mobility, however, may not outlast the present emergency. Unskilled labor is virtually ubiquitous in the United States. While the greatest markets of labor are in the large cities, an industry moving into a hitherto rural section usually finds that cash wages will draw the boys off the farms and the girls out of the homes. If unskilled labor has little locating effect, highly skilled labor has a strong locating effect. Industries which depend largely on the skill of their laborers for competitive position, especially those where labor is a large fraction of the production cost, have a very strong incentive to locate near reserves of trained labor. The jewelry industry of Providence and Attleboro is an example of location purely and simply on the basis of labor.

Another consideration for some industries is the flexibility of the labor supply. Industries with highly seasonal or sporadic demands want to be able to hire and lay off their labor forces without any responsibility for them in the slack season. This has usually discouraged small-town location, where willy-nilly the manufacturer has obligations toward his help, and has put some seasonal industries, such as the garment trades, in the larger, less neighborly cities which have a greater variety and flexibility of labor.

A third labor factor which affects the placement of industry, although we do not like to admit it, is the tractability of the labor. The eastern seaboard cities owe much of their industry to the great streams of immigrants of the latter 19th century—who could be bullied, cowed, and underpaid—and fired with ease. Since the growth of strong labor organizations, strongest in the cities, labor-dodging industries have moved out into the country where they draw on labor that is less attached to unionism and less radical in its thinking. The company towns, particularly the coal and iron towns of Pennsylvania, are famous for their suppression of labor. Homestead, Harlan County, South Chicago, Gary, and Mazon have been the scene of some unfortunate attempts to force tractability of labor. Even in as large a city as Jersey City, the combination of labor control and the political machine has served to keep the situation well in hand.

While unskilled labor, then, is almost universal, skill, flexibility, or tractability in a labor supply is more localized. The locational effect of this limited supply will depend on its importance to the productive process. Labor may vary between 15 per cent and 85 per cent of the costs of production: if an industry is at the 15 per cent end of the scale, the chances are that other locational factors will outweigh labor; if it is at the 85 per cent end, all other costs will have to be cut by one-third to equal a saving in labor costs of one-seventeenth. Hoover estimates for the shoe industry in general that a saving of 10 per cent in the cost of labor would pay for hauling the leather an extra 1000 miles, the shoes an extra 1500 miles, and the coal an extra 6000 miles, or for hauling all three an extra 545 miles. Similarly, the millinery, garment, cotton, knit goods, or confectionery industries have a

high percentage of labor cost, while service and distribution activities add almost nothing to the product that they handle, except labor.

(3) *Power*. The term *power* is used to include all forms of energy or heat used in production. Power resembles a process material in that it is completely consumed or exhausted in production, and there is a good case for considering it a raw or process material rather than a separate production factor.

So far we have discussed the locational effect of power in the same terms and in the same breath with the locational effect of raw materials. There is a difference, however. All forms of fuel can be transformed into heat, horsepower or electricity, so that to a considerable extent (that is, barring losses of efficiency in transformation) any form of power is acceptable to industry. Each industry, of course, seeks the cheapest form of power it can use, taking into account the losses in transformation if transformation is necessary. The locational effect of this power is measured in terms of the locational effect of the most completely mobile method of producing an equivalent amount. At the present state of the industrial arts, this is coal. Oil, gas and hydro-electric power may be cheaper, but they are not so completely mobile. Wood, peat or straw could conceivably produce as much heat as coal, but the cost of doing so at any given point would exceed the cost of doing the same work with coal (or its equivalent, coke, which is somewhat less transportable).

The smelting, refining and reduction industries mentioned before as being oriented to their raw materials are also, in the main, oriented to power. One of the primary reasons for Great Britain's industrial superiority was the proximity of great deposits of both coal and minerals.

One of the basic causes of power politics in Europe is the unfortunate accident that coal and iron lie on opposite sides of historic political boundaries. Large amounts of power are used chiefly in those basic conversion industries that prepare raw natural resources for manufacture.

Power is a locating factor in many other industries. It is necessary in all factories using large amounts of machinery, such as those for cotton and wool textiles, knit goods, planing-mills, rolling mills, wood products, paper, printing, and countless other light industries.

On the other hand, power very rarely influences the choice of a site. The supply is rarely so localized that moving a few blocks or even a few miles will seriously affect the cost. Any point along a railroad line or within the power-net of a utility company or on a pipe line will give power at virtually uniform cost.³ The fur garment industry, for instance, locating in New York City, need not worry about electricity for its sewing machines; the shoe factories of Lynn, Peabody and Brockton get their coal delivered to the factory door at the same price.

(4) *Indirect and Overhead Costs*. This is a catch-all category of costs, some of which have a strong locational pull for particular industries. It includes land space (or rent), capital (or interest and credit terms), waste disposal, depreciation, maintenance and repairs, service to the industry, wages of management, advertising, taxes, and the like.

There are so many of these costs, and their influence on location is so different

³ This broad statement needs modification. Locating "anywhere along a railroad line" may mean physical access to transportation but railway rates, traffic zones and other man-made arrangements do make a difference. There are also losses and higher costs in electric power transmission as the distance from the source increases. For example, aluminum plants have located close to the source of power.

from industry to industry that exhaustive treatment would take too long, but we will inspect a few of the more likely ones. Rent (or the charge for the use of land) may be a site-selection factor but hardly a location factor. Interest and credit terms tend to be a very small part of production costs, but it has been suggested that the growth of industry in Texas recently has been greatly stimulated by easy credit terms and low interest there.

Waste disposal may become a considerable problem. Until recently it has bothered few manufacturers; they dumped their sludge into a convenient stream or piled up a slag heap behind the plant. Where legal restrictions are enforced, however, an inconvenient site may cause considerable cost. At the correct site, on the other hand, solid wastes may be used advantageously in the "manufacture" of new land.

Depreciation may vary a little from climate to climate but it will have little effect on location unless moving means that depreciation will have to be charged off on two plants at once. Then it is likely to hold an industry where it is. Maintenance and repairs do not vary much from place to place, although injudicious site selection (in a river-bottom subject to flooding, for example) may result in higher costs than necessary.

Service to the industry may be a strong locating factor, particularly in industries using delicate or expensive machinery. "Subsidiary industries" servicing a parent industry very frequently spring up in areas where the parent industry is highly localized, and they help freeze the pattern.

Management is a most variable factor but one of the smallest in point of cost. Advertising does not vary from place to place to any appreciable extent, particularly national advertising, but a poor location, especially that of a service indus-

try, may necessitate more advertising than would be needed in a good location. Taxes have a considerable effect on site and location so long as they can be evaded. Federal taxes cannot be dodged by a change of location, but state and local taxes can. Manufacturers will save money here as anywhere else, if they can. Local taxes will usually change only the site of a plant; state taxes, particularly if they are also regulatory or penal, may drive a plant to an entirely different area.

On the other hand, cities and localities have used taxes or rather tax concessions and exemptions as a bait to attract industries. Sometimes a city will even offer a free site, build the factory, guarantee to control labor, and make other offers to bring an industry to the city. Unfortunately, very often such concessions have no permanent placement influence.

(5) *The Market.* The market is certainly not ubiquitous. Even the market for everyday consumers' goods like meat and bread is considerably localized, and the market for commodities like yachts and skyscrapers is so limited that on occasions it disappears completely. It goes without saying that the market is the be-all and the end-all of all industry. Some industries, however, are more dependent on market location than others, selling or selling-cost being a more important factor. The locating pull of the market, then, will depend on the mobility of the product and on selling-cost differentials based on location.

If the product is mobile, the locational pull of market will be proportional to the cost of transportation. Referring to Weber's material index, if the ideal weight of the product is greater than the combined ideal weights of the raw materials and power, there will be a tendency to locate at the market. In computing the cost of transportation of products, the transfer

cost must include not only the actual freight rate, but also the total cost of crating, shipping, insuring, and the loss through physical or style deterioration. The production of perishable garden truck clings to the market because distant producers must either refrigerate their products or take a loss on decay in transit. This competitive disadvantage can be overcome only by savings in other costs of production. This holds true, however, only within the same growing season. During the winter, California, Florida and the South in general have no competition from fresh northern-grown vegetables.

Converting a raw material carrying a low freight charge into a fragile product with high breakage and high freight rates gives the productive process a material index less than 1 and impels it toward the market. Style deterioration has an almost absolute locating effect on high-fashion industries. The garment and fur trades of Manhattan are immediately sensitive to style changes and must be able to deliver their product, not within days, but within hours of the date of the order. They therefore pay the high rents and labor charges of New York City to avoid the incalculable loss from style deterioration that would result from a location 15 or 20 hours from the city. Bulk or weight added to raw materials will lower the material index and pull a process like baking toward the market. These are not absolute locating effects, of course; the strength of the pull will depend on the amount of the transfer cost. In many cases it will be an orienting factor, in others, merely a locating factor. The market will have to pull against other factors also; but, in general, industries with a bulky, heavy, perishable, or deteriorating product will locate as close to the market as possible.

Certain other industries in which, for internal or technical reasons, manufacture cannot be divorced from distribution or sale are also oriented to the market. Custom tailoring, made-to-order clothing, cabinet making, and photography are examples of enterprises in which consumer influence plays a dominant part in the productive process. The less staple and standardized the product or the greater the element of style and individual choice, the more the customer will want to see the product before buying and the more the productive process will have to be altered to fit each customer's taste. Naturally, these "made-to-order" products will be made as near the market as possible. Another class of industry which is located at the market is the service industries. Laundries and dry-cleaning plants, garages and repairing industries of all kinds must locate at the market. There is no other attractive force working on them.

Finally, some economic activities must locate at the market irrespective of the usual factors of location. Construction and installation must take place at the ultimate site of the building, the power dam, or the railway. Men and materials must be transported to the wilderness in Canada, to the waste lands of the Grand Coulee region, or to Alaska if construction is to be carried on there.⁴

Decentralization of Industry

The word *decentralization*, like *location*, has more than one meaning. Changes

⁴At this point the author introduced a discussion of the location of stores and other retail establishments within cities *per se*. This section has been omitted because it appeared to expand the term *industry* unduly, and the editors did not feel competent nor justified to do the necessary editing. One sentence we could not delete: "If you are selling a better mousetrap, the world may beat a path to your door, but if you are selling a pretty ordinary mousetrap, you will do better to locate on an already-beaten path."

in the placement of industry appear to fall into three classes—migration, dispersion, and diffusion.

Migration, I would define as a major change in the orientation or location of an industry, usually implying that the old placement of an entire industry is obsolete. For instance, the glass industry has migrated from Cape Cod to its present position because it has needed cheap fuel and has successively oriented itself to wood, coal, and natural gas.

Dispersion is a change of placement based on change in location factors. It usually implies that the new locations increase the number of locations rather than replace the old ones. The shoe industry has dispersed itself westward as far as St. Louis, and cotton textiles have spread into the Piedmont. That does not mean that both industries will not continue to operate in New England; it merely means that because of changes in the locational effect of some of the factors of production it is now economically possible to make shoes and weave cotton outside New England as well as inside.

Diffusion, or a change of site within the same location, is what I would consider true decentralization, but to avoid confusion we will use the term *diffusion*. Diffusion is typically an attempt to escape the high overheads consequent upon overcrowding, the sort of movement described by Haig and Creamer. In New York City, for example, industry after industry that was previously located in downtown Manhattan has been forced out to the periphery by rising rents and taxes and congestion. Creamer's statistics seem to show that the peak of industrial centralization in the United States was reached about 1919, and that since then industry has been decentralizing, not into the open country, but into industrial peripheries of urban areas and into so-called "principal

industrial counties" with no large center. If this is true, then the most important decentralization, quantitatively, is diffusion, which is also most pertinent to the problems of urban-rural fringe.

There are certain industries, of course, that will not decentralize, i.e. *diffuse*. People who talk about putting every family in America on a three-acre plot with a two-car garage and an express highway are not talking sense. Mining will never be decentralized away from the mines; merchandising will never be decentralized away from the consumption centers; and services cannot serve from a distance. Servicing the commerce of the port of New York, for example, will never locate anywhere but on the New York waterfront; the Normandie will never dock at Topeka and the stevedores' union will never organize a local in Bismarck.

The Planner's Approach to Industrial Location⁵

The list of location factors above is far from complete, of course, and under each factor I have merely tried to mention a few elements that might affect particular industries.

I would like to recommend another approach to the problem of industrial location, the approach from the planner's point of view rather than from that of the industrialist's. The industrialist, locating a plant, takes a list of location factors and checks those that affect his industry. If he plans to manufacture ploskriffs, for example, he figures that he needs so many tons of ploss from the ploss fields located in Utah which can be transported at so much per ton; he needs so many tons of

⁵ This section was not so well organized nor so conclusive as the foregoing parts of the paper. The editors felt the need of some condensation and editing in order to bring Mr. Helburn's ideas to a sharper focus.

kriff from the kriff mines in Louisiana which can be carried at so much per ton; he needs so many kilowatt hours of power for every ton of ploss and kriff combined, and so many man hours of unskilled labor plus so many hours of supervisory labor; he is going to sell his product to the manufacturers of pottery for packing material. Where should he locate?

The planner is not so much interested in the precise location of individual plants as he is in the general pattern of land and resources used by industries or groups of industries. I would like to suggest that we try to take groups of industries and classify them by the *characteristics of the productive process*. I would not venture to submit the precise nature of the classification, but it should be such as to indicate whether the industries of each group will tend to be concentrated or scattered; whether best located in urban or rural or fringe areas; whether they should be near markets or raw materials or power, and what kinds of markets or raw materials or power; whether they will sell in local, regional, or national markets; and so on.

After classification and survey, it would be desirable to (a) catalogue the production-characteristics of each industry and (b) evaluate the locational pull of cost-differentials in each element of production. This information in turn would enable one to say, "The future development of this area will tend to be light industry for local needs, while that area will be devoted to heavy manufacturing for the Southern market." Or, conversely, "This industry will be decreasingly influenced by transport costs and will spread out gradually to get near its market, while that industry will stay as near as it can to railroad sidings in existing urban areas."

Dr. Gardiner Means' recent report on *Patterns of Resource Use* suggests a method of predicting the productive needs

of this country if we return to any given level of the national income. Now, if we attain a national income of \$80 billion, says the report, we will need 16 more plants to turn out product *x*, and 3 more plants for product *y*, and 12 more steamers on the Great Lakes. "Well," says the planner, "we are going to need 16 more plants, and here is a little chart which tells me where they should be located. I guess I will go around and see the trade association and get them to put their influence behind locating the mills in the right place." Many chambers of commerce have made serious mistakes in attracting industries to improper locations, with or without concessions and subsidies. The planner's approach to industrial location can furnish a guide to both public officials and private entrepreneurs in their attempts to locate industries.

Finally, and most important from the standpoint of urban-rural relations, a comprehensive analysis of location factors would permit more intelligent discussion of industrial decentralization. Without any subjective opinion as to whether decentralization is a "good thing," I feel that there is substantial evidence to show that many industries could be decentralized by an intentional alteration in the placement pull of certain production factors and that this decentralization would result in social gain. Overcrowding is profitable to nobody except real estate owners. The "intentional alteration" of the pull of the six factors that determine orientation, location and site may result in migration, dispersion or diffusion, i.e., decentralization. It is within the power of the federal government, the state or local governments to change some of these factors, whereas they are powerless to modify others.

The location of raw materials, the agglomerations of people furnishing the

market and labor are fixed in space, they are immobile and cannot be moved about by government edict. However, to overcome space is not so much a matter of weight, as visualized by Weber, as a matter of the cost, speed, time and safety of transportation. Should the public regulating bodies make drastic changes in freight rates, we can expect migration and dispersion of entire industries. Technology, furnishing new forms of power or new forms of transport (for instance, the helicopter and other more powerful and efficient planes), may transform the economic map without the influence of the government. On the other hand, the government may choose to subsidize or aid one form of transportation as against another in order to influence the industrial pattern.

To the degree that the government is entering the power field, to that extent it may exert a direct influence on the location of industries. Changes in labor laws may create or wipe out differentials between rural and urban areas, or the differentials between regions. States and localities are deliberately using taxation to induce industries to decentralize or disperse, as is the case in the New York metropolitan area where factories can choose among six states and still be within 100 miles of New York City.

There is little doubt that industry is migrating, dispersing and diffusing all the time and will continue to do so without the blessing of economic or social planners. The war has caused industries

to spring up over the entire United States, some in response to the factors of location, others because of the nature of the industry and the exigencies of war, still others because states wanted a share of the war prosperity and got it through government action.⁶ All of these localities will want to hold what they now have. What have planners to offer as principles to aid in the postwar public programs of industrial location? Do we not need a comprehensive analysis of locational behavior and locational patterns, and a *philosophy* to guide us in any policies of decentralization, migration and dispersion of industries?

⁶For instance, the factors which were taken into consideration in placing a certain explosive-manufacturing plant were; orientation in some inland state, location on a given soil type, and distance from large aggregations of population at a site adjacent to an adequate water supply.

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The Administration of Rural Zoning

By GEORGE S. WEHRWEIN*

IT is to be expected that any new venture such as rural zoning would be imperfect or develop imperfections in the course of time, especially when so many counties completed the enactment phase in less than 5 years. There were few precedents for the first ordinance adopted in a cutover county; urban procedure was an inadequate guide for enacting land use regulations in the farm-forest fringe where the objectives of zoning were comparatively simple—the prevention of isolated settlement and keeping settlers from occupying submarginal land.

In 1938 a study was begun by the Wisconsin Experiment Station in cooperation with the Bureau of Agricultural Economics to appraise the accomplishments of zoning in the 25 northern Wisconsin counties. The purpose of the study was to discover the strength and weaknesses of rural zoning in its social, political and economic setting in the cutover region of Wisconsin, with the hope of making suggestions for improvements in the enabling act, in the ordinances and in administrative procedures. A general survey was made of all zoned counties and a more detailed study was made of Langlade and Oneida counties and the town of Washington in Vilas County. This area was selected partly because the three counties were the first to zone and therefore had the longest experience.¹ In general, data and figures are for 1940.

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¹ This article is the last of the series reporting the results of this cooperative study. The Bureau was represented by Sidney Henderson and Louis Upchurch. Others assisting in the study include V.

Rural zoning began when the Wisconsin legislature amended the county zoning enabling act of 1923 by inserting the words "agriculture, forestry and recreation" in this statute, thereby permitting the regulation and control over these three non-urban land uses. This was done in 1929. Two northern Wisconsin counties enacted rural zoning ordinances in 1933; 16 in 1934, 5 in 1935, and one each in 1937 and 1939. Marathon County enacted its ordinance in 1940 but this county has a composite rural and suburban type of zoning and is therefore in a class by itself.²

Since only a few counties remain that might want to adopt a *rural zoning ordinance*, the period of enactment is practically over; therefore, the emphasis in this article will be placed on *administration*. It is a comparatively simple matter to enact a county zoning ordinance, even though the process is more complicated than enacting the ordinary county board

Webster Johnson, James H. Marshall, Leonard A. Salter, Jr., L. G. Sorden and several graduate students at the University of Wisconsin. The author is indebted to his colleagues for data and suggestions, but assumes responsibility for the opinions expressed in this article.

The other articles in this series are; Philip M. Raup, "An Example of Public Land Management: Lincoln County, Wisconsin," *Journal of Land & Public Utility Economics*, May, 1941; George S. Wehrwein and Hugh A. Johnson, "Zoning Land for Recreation," *ibid.*, February, 1942; and Sidney Henderson and M. L. Upchurch, "Relocation of Manpower and Zoning," *ibid.*, February, 1943.

² In this paper the term *rural zoning* will be confined to zoning for agriculture, forestry and recreation. For the other forms of county zoning see J. M. Albers, "Progress in County Zoning: Marathon County, Wisconsin," *Journal of Land & Public Utility Economics*, November, 1940.

ordinance. It is much more difficult to administer a zoning ordinance, not only because it is more difficult to enforce a law than to pass it, but because of the very nature of zoning itself. Rural zoning means enforcing land use regulations on oneself and one's neighbors which affect the freedom of action of the individual and the value of the land and "premises." It involves the vexing problem of dealing with non-conforming land uses and promoting the best use of the restricted areas.

Rural zoning administration is doubly difficult because the ordinances have been enacted in the farm-forest transition area where counties were enfeebled financially by millions of acres of tax delinquent land which failed to contribute their share for the support of local government. They were faced with a growing tax-exempt public domain in county, state and federal ownership. Although public revenues shrank, the costs of public services grew, especially when the flight from the city added burdens of relief, roads and schools. In addition to administering zoning these counties now have the problem of handling tax-reverted lands, public land management, exchange of land, resettlement of non-conforming users, and changing the forms and functions of local government to meet the new conditions. Zoning is one task which cannot be shifted to other levels of government. Furthermore, it had to be carried out with existing machinery and decreased financial support during the depression years. Any appraisal of zoning must take into consideration the complexity of the land problems of the cut-over areas and the governmental mechanism at the disposal of the county officials to carry out land use programs.

Zoning is a good example of the growing duties of county governments—duties forced upon them by adjustments in land utilization. Much of this article will deal

with the historical development of changes and modifications in existing machinery which enabled Wisconsin counties to cope with the situation. Any state where zoning and land use adjustments have to be carried out on the farm-forest or farm-grazing margins will be faced with the same difficulties.

Administration of County Zoning

The original Wisconsin enabling act merely stated that "the county board shall prescribe such rules and regulations as it may deem necessary for the enforcement of the provisions thereof, and all of the ordinances enacted in pursuance thereof . . . Such ordinances shall be enforced by appropriate fines and penalties. . . . Compliance with such ordinances may also be enforced by injunctive order at the suit of such county or the owner or owners of such real estate within the district affected by such regulations." (Sec. 4 59.97)

Thus no additional machinery was provided for and the burden of enforcement and administration was placed upon the county board of supervisors, assisted by the other county officers in their regular capacities. However, under another statute (sub-section 18 of 59:07) county boards are empowered to appoint a building inspector, "define his duties and fix his term of office and compensation" for the enforcement "of all laws, ordinances, rules and regulations enacted pursuant to the provisions of section 59:97," but the inspector has no jurisdiction over "lands actually used for agriculture," which limits the usefulness of this officer in rural zoning. The Michigan enabling act of 1943 provides for a permanent county zoning commission composed of 5 members whose chief duty is to assist with the enactment of zoning ordinances but they also have been given administrative du-

ties, such as preparing the list of non-conforming users. This act also makes a board of appeals mandatory whereas, under the Wisconsin laws, a board of adjustment is provided for under a separate statute (59.99) and is not mandatory. Furthermore, the Michigan enabling act provides that "the county board of supervisors of any county shall in the ordinance . . . designate the proper official or officials whose duty it shall be to enforce the provisions of such ordinance and provide penalties for the violation thereof" (Section 24).³ Coupled with the next section, which provides for the special tax for zoning, the Michigan act exhibits the possibility of providing both the needed machinery and the financial assistance for the administration of county zoning ordinances.

Administration consists primarily of listing and administering non-conforming uses (including their discontinuance), enforcing the land-use regulations, and constantly adjusting zoning to changing conditions.

Administration of Non-Conforming Uses. The original enabling act merely provides: "Such ordinances shall not prohibit the continuance of the use of any building or premises for any trade or industry for which such building or premises are used at the time such ordinances take effect, or the alteration of, or addition to, any existing building or structure for the purpose of carrying on any prohibited trade or industry within the district where such buildings or structures are located."⁴

³ House Enrolled Act #117, 62d Legislature, Regular Session of 1943. This provision was also part of the zoning act of 1935.

⁴ This section reflects the urban heritage of county zoning. "Land use" is not mentioned but the words "trade" or "industry" no doubt can be interpreted to cover agriculture, forestry and recreation. It was so interpreted, as far as agriculture is concerned, in

No other provision was found in the original enabling act dealing with the defining and administration of non-conforming uses. Additional regulations had to be provided by the ordinances of the counties. The Milwaukee County ordinance added several sections dealing with the subject which have been repeated in the Oneida County ordinance, and in the other Wisconsin rural zoning ordinances.

Section IV of the Oneida County ordinance reads:

"The lawful use of any building, land or premises existing at the time of the passage of this ordinance, although such use does not conform to the provisions hereof, may be continued, but if such non-conforming use is discontinued, any future use of said building, land or premises shall be in conformity with the provisions of this ordinance.

"The lawful use of a building, land or premises existing at the time of the passage of this ordinance may be continued although such does not conform with the provisions hereof and such use may be extended throughout such building, land or premises.

"Whenever a use district shall be hereafter changed, any then existing non-conforming use in such changed district may be continued or changed to a use permitted in the new use district, provided all other regulations governing the new use are complied with.

"Whenever a non-conforming use of a building, land or premises has been changed for more restricted use or to a conforming use, such use shall not thereafter be changed to a less restricted use, unless the district in which such building, land or premises is located is changed to a less restricted use.

"Nothing in this ordinance shall be construed as prohibiting forestry and recreation in any of the use districts nor a change from any other use to forestry and recreation."

This section sets a limit to the rights of the owner of a non-conforming use by

Attorney General Wylie's opinion on the Wisconsin zoning act submitted to the Special Legislative Committee on Forest Fires and Delinquent Taxes in 1931.

making it illegal to restore a discontinued use or change from a more restricted to a less restricted use.

Even though the county board or its zoning committee, the sheriff and the district attorney, are ready to administer the ordinances and punish violators, no method has been prescribed in the enabling act or by ordinance for detecting violations. Suppose the sheriff found what appeared to be a new settler or a new tavern in a restricted district, how could he prove that the alleged violator had moved in *after* the ordinance was passed or how could the land owner prove that he had been on the land *before* the action of the county board had created the restricted district? Or if the county or an aggrieved land owner tried to enforce the ordinance by an injunctive order, as is provided for under the enabling act, it would be difficult for any of the parties to the suit to prove the date of occupancy. It is held by some that such matters should be settled by the courts but the courts would still be without guiding legislation and both the county and the individual land owner would remain in constant uncertainty.

The problem is less difficult to handle in suburban zoning where the county usually provides a system of building permits and employs a building inspector.⁵ Since zoning is not retroactive under the Wisconsin enabling act, all that is necessary is to prevent *new* prohibited uses from coming into a restricted district. A land owner applying for a permit to build a store in a residential district may be denied a building permit by the officer issuing these documents. If the owner fails to get a

permit in the first place or asks for a permit to build a home and then puts up a store instead, such violations can be detected by the building inspector as part of his regular duties.⁶ However, a system of permits would be impractical in a sparsely settled frontier community and is likely to be considered an unreasonable regulation in a territory where building is done by "rugged individualists"—farmers, trappers, and cabin owners. In a closely built-up section the job of a building inspector is likewise simple compared to checking on structures dispersed over an entire county, many of them scattered and hidden in backwoods areas. Building permits and inspectors also mean additional expense, more officials and extra duties for counties which often have a hard time paying their present corps of officers and maintaining the regular functions of government. Most important of all, *building* permits would not apply to *land uses* such as agriculture, forestry and recreation; they can apply only to structures on the land.

Furthermore, building permits are of little assistance in the administration of non-conforming uses. It takes continuous attention to discover discontinued non-

⁵ Urban and suburban ordinances (sometimes as part of the zoning ordinances) usually also provide for "certificates of occupancy and compliance" which are issued to the land owner after the building or its alteration is completed, showing that he has carried out the provisions of the ordinances. Failure to obtain such a certificate debars the owner from using his land or buildings until he has complied and the certificate is duly issued. Sections c and d of Section XII of the Marathon County ordinance require certificates of occupancy and compliance for structures in the forestry, residential and commercial districts but not in the agricultural district. Building permits and certificates are granted by the county clerk who keeps a record of all certificates issued by his office. The date of the certificate becomes *prima facie* evidence of the date of occupancy which can be compared with the date of the zoning ordinance and its amendments in order to check on violations of the ordinance.

⁶ Milwaukee County adopted a County Building Inspection Ordinance July 10, 1928, which provides for the appointment of a building inspector whose duty it is to enforce the provisions of 59.97, Wisconsin statutes and ordinances enacted thereunder.

conforming uses, to check on the reestablishment of such uses, and to check on shifts from less restricted to a more restricted use. Even the person who has obtained a permit must be watched to see that he does not build a store in place of the permitted residence or change to a commercial use after some years of residential use.

As already noted, counties may appoint building inspectors to enforce county zoning with the proviso that the jurisdiction of such inspectors "shall not extend over any lands actually used for agricultural purposes." How much the building inspector law helps or hinders rural zoning is a puzzle. It does not prohibit the use of zoning nor building permits on agricultural land: It merely limits the activities of the only official specifically provided for zoning enforcement by the Wisconsin statutes. It is doubtful whether he can be used to enforce zoning in the forest and recreation districts because many of the non-conforming uses consist of "land actually used for agriculture." No enforcing is called for in the "unrestricted districts" which are predominantly in agricultural use. Marathon County compromised with the provision that in the agricultural district no building shall be erected, existing buildings enlarged or moved "unless the owner of the premises or his agent shall have first notified the county clerk of such proposed construction, enlargement or moving." The county clerk merely has the duty to inform farmers whether they are complying with the ordinance, i.e., are not introducing prohibited uses into the agricultural district or violating the set-back clauses of the ordinance.⁷

In view of the limitations, practical and legal, on administrative machinery for the enforcement of regulation of the rural

land uses, Vilas County took an important step when it provided in its ordinance:

"Immediately following publication of this ordinance by the county board, the colonization⁸ committee shall prepare a list of all instances of established non-conforming uses of land and publish the same to permit appeal on errors and omissions. Thirty days after the publication of this list, a final and official copy shall be filed in the office of the register of deeds."

Publication of the list of non-conforming users served notice on all land owners that land in the restricted district was hereafter subject to the regulations of the ordinance, *except those tracts specified as legal non-conforming uses*. Those omitted had the opportunity to have their lands so listed within 30 days after publication. After the "final and official copy" had been filed in the office of the register of deeds, the burden of proof rested with the land owner; the county had done its share in safeguarding the rights of legal non-conforming users and now it also had a means of detecting violators. Anyone not on the official list was considered a violator unless proved otherwise. This provision was repeated almost verbatim in the Langlade County ordinance and in later ordinances.⁹

Although practically all the counties had incorporated in their ordinances a provision for the listing of non-conforming uses, it was felt that this matter was too important to leave to the discretion

⁷ In this county the colonization committee acted as the zoning committee.

⁸ The usual practice of making these lists consisted of an interview with each town assessor whose town had restricted lands. The assessor went over his assessment roll and located for the inquirer all the residents of his town located in the zoned areas who were non-conforming users at the time the list was made. That this method was not absolutely accurate was to be expected and discrepancies were found when the field check was made by the investigators making the present study. Oneida County prepared such a list after the Amendment to the Wisconsin enabling act of 1935 was passed.

⁹ See J. M. Albers, *op. cit.*

of the counties. Furthermore, uniformity of procedure would be obtained if the method were incorporated in the enabling act itself. Accordingly, the 1935 legislature added subsection 7 to the original statute making the listing of non-conforming uses mandatory and also prescribing the method. The amended enabling act requires the recording of the "names and addresses of the owner or owners of such non-conforming use, and of any other occupant than the owner, the legal description or descriptions of the land and the nature and extent of land use."

The inclusion of the names and addresses of occupants other than the owners was important. Any resident of the town who has lived a year or more in the town is considered a legal resident whether he owns land, rents, or is a squatter. One of the uses prohibited in the forestry districts, and specifically mentioned in all the ordinances, is *family dwellings*, defined as "any building designed for and occupied by any person or family establishing or tending to establish a legal residence or acquiring a legal settlement for any purpose upon the premises so occupied."

The legal description of the non-conforming use is also important. The significant problem in agricultural non-conforming land uses is not so much the right to alter or add to *structures*, but the right to add to the area of cultivated land within a given farm. Suppose a "non-conforming" farmer owns 160 acres, of which 10 acres were cleared at the time the ordinance was passed, the remainder being forest or cutover land and therefore no different from the land use of the forestry district in general. Does the law imply that he should or should *not* be permitted to clear the *entire tract*? The intent of the law seems to permit the entry of the entire description owned by the oper-

ator as the non-conforming use which automatically gives him the right to use all of it for agriculture. This is clarified in the county ordinances which clearly state that "the lawful use of a building, *land* or premise . . . may be extended throughout such building, *land*, or premise." Since all of the land of a given tract is a legal non-conforming use, there is nothing in the law to prevent the owner from selling a 160-acre tract as 40-acre farms to four families. It is not so clear whether tracts not contiguous to the home farm, consisting only of wild or forest land, should be listed as non-conforming. Counties, however, have the right to use discretion in listing any doubtful descriptions and then await the protest of the owner during the period between the date of publication and the time the list becomes official. In such cases not only the area of land but the date of occupancy or use may be scrutinized by the county board or its zoning committee.

The amended enabling act also requires the recording of "the nature and extent of land use." This is mainly for the purpose of supplying information for other land use programs. Most of the counties listed the names and addresses of the owners, and occupants if other than owners, the land descriptions, and certain information relating to the family, such as number of school children, distance to school, and relief status. Many lists also indicate the extent of agricultural operations, if any, and the type of road on which the land is located.

The amendment of 1935 also extends the time between publication and final action from the 30 days (as required in the ordinances) to 60 days, at which time the list is filed with the county clerk and the register of deeds. The latter office was included so that buyers and sellers of land would find a record of non-conforming

uses against which they could check land contracts, deeds and mortgages. This record "constitutes prima facie evidence of the extent and number of non-conforming uses existing at the time the ordinance became effective." But even after this the board of supervisors has the power to correct errors and omissions on its own motion or upon the petition of any citizen.¹⁰ In 1938 not all of the counties had published their lists of non-conforming users although they had prepared such lists. Over 2000 users were found on the original lists involving 175,000 acres of land. This gives some idea of the task of administration of non-conforming users.

During the course of the study, a check was made of the non-conforming uses of the area subject to intensive survey. The investigators drove over all the restricted areas to discover non-conforming settlers and check these against the official lists. It was found that the land descriptions of about 60 per cent of the non-conforming use tracts existing at the time this survey was made, including discontinued tracts, checked exactly with the original lists. Another 20 per cent checked closely enough to be useful for most practical purposes. However, about 17 per cent of the non-conforming use tracts, which had been established prior to the passage of the zoning ordinances, were not included in the official lists, even though about two-thirds of the omitted tracts were actually occupied. Most of the original lists were prepared without actual inspection of the land but had been compiled with the aid of local assessors and other offi-

cials, which accounts for most of the discrepancies.

If the situation in the three counties is typical, the number of errors and omissions is serious enough to make the official lists of non-conforming users doubtful as prima facie evidence in cases involving violations of the zoning ordinances. It is recommended that the committees charged with zoning should now recheck the lists with the assessors, make a field reconnaissance of the restricted districts, ascertain the actual location of all non-conforming users—owners, renters, squatters—and prepare a new list. This work could be delegated to the county agent or the county land manager. Such a recheck would also yield valuable information which would suggest amendments to the zoning ordinance and changes in the boundaries of the districts. Wherever changes are made in the boundaries it will be important to recheck the list of non-conforming users. Legally, this list is supposed to be as of the date of the enactment of the ordinance and therefore making a new list 8 to 10 years after the enactment would hardly be valid. It has been suggested, therefore, that the zoning committee prepare a new ordinance, a new map embracing all the changes made by former amendments and the new amendments, a new list of non-conforming users as of the date of the new ordinance, and then have the county board repeal the old ordinance and at the same session replace it with the new one. There is nothing in the enabling act requiring town board action in connection with repealing a county zoning ordinance; the new one would, of course, be submitted to all town boards whose towns have lands affected by the ordinance. As soon as the town boards have acted, the new list of non-conforming uses should be published immediately so that within 60 days the cor-

¹⁰ The intent of the law is to protect the property owners only to the extent of "errors and omissions"; it should not be used as an opening for concessions, changes and compromises due to the pressure of groups or individuals. The decision of the board of supervisors in such matters is final. In this respect it has some of the important functions of boards of adjustment.

rected and official lists could be filed with the county clerk and the register of deeds.

It is interesting that both the Minnesota and the Michigan enabling acts require the preparation of a complete list of non-conforming users to be filed in the same county offices as in Wisconsin. In Michigan the county zoning commission is charged with the preparation of this list.

Discontinuance and Reestablishment of Non-conforming Uses

Even though a list of non-conforming uses has been made and properly recorded, the most difficult part of administration still remains. Violations consist not only of illegal uses and occupancy coming into a restricted district but also of discontinued uses being reestablished or of a change in the status of non-conforming uses from a more restricted to a less restricted use. For example, if a farm is abandoned, buildings are unoccupied and all agriculture has ceased for at least one year, the non-conforming use has legally been discontinued and the future use of the buildings, land, and premises must be in conformity with the provisions of the ordinance, i.e., can be used only for the 10 to 12 permitted uses specified therein. A squatter occupying the abandoned house for year-long residence, or a neighbor using the land for crops with or without buying the land, would violate the ordinance. Such acts would be considered as reestablishing a discontinued use.

It has been suggested that structures be removed promptly on all land acquired by county, state, or federal governments on land in restricted districts. The existence of such buildings in a restricted district is a constant invitation to squatters and others to reoccupy them in violation of the ordinances. However, since many of these buildings are on land remaining in

private ownership, their removal can be effected only through public acquisition of the land. In the sample area of Oneida, Langlade and Vilas Counties it was found that 20 of the discontinued non-conforming use tracts had uninhabited but livable buildings. In some cases non-conforming users were occupying abandoned school-houses; since these are public buildings, there should be little difficulty in keeping out squatters or removing the structures themselves. As long as the buildings remain, whether on public or privately-owned land, their occupancy must be closely guarded so that they do not become year-long residences.¹¹

"Whenever a non-conforming use . . . has been changed for a more restricted use, or to a conforming use, such use shall not thereafter be changed to a less restricted use" has less application in rural zoning than in urban or suburban zoning where gradations in uses often occur, such as A, B, and C residential districts. However, if a non-conforming farmer stops using his land for crops and changes his establishment into a resort in a recreational district, he has changed the use of the land to a conforming use even though he lives on the land the entire year. Once he has made this change he cannot legally return to farming. It would appear that this would also apply to a change from year-long seasonal residence in a forestry district. Such shifts in land use were observed in the study made in Langlade, Oneida and Vilas Counties and will be discussed later, together with the problems of administration.

¹¹ This recommendation was also made in Circular 281 in 1936, p. 29-30. Here their danger as a fire hazard and a menace to health was pointed out. On the second point, see W. A. Rowlands, "Rural Zoning: Its Influence on Public Health and Schools," *Special Circular*, Extension Service of the College of Agriculture, University of Wisconsin, July, 1936 (Mimeographed).

The original enabling act did not go beyond giving the county board of supervisors the power to enforce the zoning act and ordinances enacted thereunder. The county has, of course, the usual county law-enforcing officers whose duty it is to enforce all laws and ordinances. Nevertheless, "what is everybody's business is nobody's business." County boards in Wisconsin are large and sometimes cumbersome so they delegate duties and powers to committees. This helps but does not solve the problem of zoning administration. *Someone* has to check settlers and uses against the list of non-conforming users, not only once but as a continuing task. Only those counties with a building inspector, or a similar official adequately supported, or who have an officer delegated by the board, as contemplated in the Michigan law, have the specific machinery for detecting violations of zoning ordinances.

Enforcement of zoning ordinances may also be carried out by private action since both the enabling act and the ordinances say that "compliance with such ordinances may also be enforced by injunctive order at the suit of such county or the owner or owners of real estate within the district affected by such regulations." Action by private individuals can be relied upon to be a rather effective means of enforcement in suburban and city zoning, where violations usually have an immediate effect on the character of the neighborhood and the level of property values. Neighbors are speedily aware of the introduction of incompatible uses and generally watch discontinuances, changes of status and violations of non-conforming uses with an eagle eye.

Rural zoning, however, is less a matter of private than of public interest since it involves primarily public costs and is closely associated with other public land

programs. It is true that certain uses in a recreational district may seriously affect the character and amenities of the area and therefore property values, but unless recreational districts are more highly developed than they are now, the private aspects of zoning will not be as important as the public aspects, even in recreational districts. Therefore, it is not wise to put any reliance on enforcement of rural zoning by private injunctions and court action brought by private individuals.

Administration of Discontinuance. Since the original enabling act made no provision for zoning enforcement machinery, the act was amended in 1935 to correct this omission. Keeping in mind the northern Wisconsin counties, it was decided that existing officers or offices should be made responsible for zoning administration without creating new positions or placing extra financial burdens on the towns and counties of the forested area. Because the town assessor is charged with the duty of making an annual visit to all properties to be assessed in his jurisdiction and usually knows every resident within his assessment area, it was believed that he could most conveniently check on zoning violations. He automatically becomes aware of any newcomers in his town and cannot help but notice abandoned and changed land uses as part of his usual duties.¹² Accordingly, the enabling act was amended to provide: (1) The county clerk is to furnish a list of non-conforming users to each town assessor as soon as the official list is completed.

¹² In Wisconsin assessment of property is done by town (township), village and city assessors. The assessor is expected to begin to assess all real and personal property as soon as practicable after the April election and complete his work before the meeting of the board of review scheduled for the last Monday in August. Property is assessed as of the first of May, however. (Sections 70:10 and 70:46)

(2) After the assessment of the following year and every annual assessment thereafter, the assessor is to file a written report, certified by the board of review, of all non-conforming uses which have been discontinued between assessment periods. This report is to be made to the county clerk and the register of deeds, who are to make a record of the discontinued uses reported to them by the assessors. The law specifically states that this procedure shall not apply to those counties issuing building permits or that have instituted other devices for enforcing zoning ordinances and for checking non-conforming uses. This leaves the counties free to experiment with other devices under the broad powers given to the board of supervisors in Section 4 of the enabling act.

One of the purposes of the study of zoning administration was to find out how successful the amendments of 1935 had been in providing adequate machinery for zoning enforcement. The results of the study indicate that there is considerable room for improvement. In only two counties had lists of non-conforming users been sent to the assessors and the assessors made reports on discontinuances at the time the study was made. In none of the counties had regular annual reports been made. No systematic procedure for reporting discontinuances had been followed in any county. This appears rather discouraging. To be effective all of these things should have been done immediately after the ordinances were passed. Who or what is at fault? The failure to send out the lists of non-conforming users rests with the county clerk. However, a new clerk may have been elected shortly after the ordinance was passed who was uninformed about the law. Assessors are elected for only one year and this new duty is not found in the section of the statutes dealing with their work as as-

sessors. The failure no doubt is due both to ignorance of the job as well as to indolence or neglect of duty.

This experience indicates that imperfections in zoning administration may be due to two causes. It may be that existing legal machinery was inadequate and not adapted to local conditions, or that the administrators were lax and indifferent in carrying out the laws of the state or the ordinances of the county. If the second cause seems to be the chief reason, it is important not to reach premature conclusions because the enabling act and the ordinances may not have met the social, economic and legal situations of the area. The whole matter of reporting and administration should therefore be explored to see whether other officers might not be required to report violations either in addition to the assessor or in his place. For instance, the highway patrolmen go over the roads frequently and cannot help seeing new settlers along their routes. Some of the northern counties already have some employee designated to administer county forest crop land. Usually this employee, or some other individual, has the duty of handling county land other than that entered under the forest crop law. The men in these positions are well acquainted with the land in their counties and the problems of its use. In line with their regular duties they periodically travel over much of their county and could check on violations of the ordinances and discontinuances of non-conforming uses without much additional cost. With such an official the zoning committee and county board could keep themselves better informed regarding zoning and its relation to other land problems, and consequently could administer zoning more effectively. A few counties are informally following this procedure but, to make the reporting

most effective, it should be made a definite part of the duties of these officials.¹³

The fact that the mechanism for reporting non-conforming users has not worked perfectly, however, does not mean that no abatement or discontinuance of such land uses and no enforcement has taken place. County agents, men hired to check timber trespass or who in other ways deal with county land, and other county officials have reported discontinuances or violations of the ordinances. In other cases these officials have actively promoted the exchange of land, the purchase of non-conforming use tracts, the resettlement of isolated settlers, or the change of the boundaries of districts and thereby reduced the number of non-conforming users. As reported in a previous article, in Oneida, Langlade and the part of Vilas County under the special study of 1938, 94 or 21% of 452 original non-conforming users had been discontinued. The federal government had purchased 18 of these tracts, 12 had been discontinued by county action but 64 by private action. About half of the 64 had been completely abandoned as far as residence or agricultural operations were concerned and the others had been changed from a non-conforming to a legal use by being used for summer homes, seasonal resorts, hunting cabins, or part-time residences.¹⁴ According to another source, in 21 zoned counties 429, or 19.8% of the original 2,164 non-conforming users, had lost their status.¹⁵

¹³ See Philip M. Raup, *op. cit.*

¹⁴ Henderson and Upchurch, "Relocation of Manpower and Zoning," *op. cit.*, p. 4-5.

¹⁵ W. A. Rowlands, "Zoning Meetings Well Attended," *Wisconsin Counties*, Oct. 1941, p. 14. "Out of the 2,164 non-conforming users . . . already 259 have been purchased by the Federal Government. 108 have been purchased by the county and 288 have been removed by subsequent changes in the zoning ordinances [changes in boundaries of districts], 62 have been discontinued by non-use. There

Discontinuance of "Agricultural Use."

One of the problems raised by rural zoning for which there is no precedent in urban zoning is the discontinuance of the agricultural use of land. In the case of the 64 non-conforming tracts reported discontinued by private action, the definition of the term *discontinued* was purely arbitrary; it is not defined in the enabling act nor in any county ordinances. In reporting *discontinuance*, only those cases were considered where the land or premise had not been used for year-long residence or for farming for at least a year. The lack of a precise definition as a guide places unusual responsibility on the assessor and other officials.

There are many stages of abandonment or discontinuance of a farm. For example, the investigators found that all agricultural use had ceased on 13 non-conforming tracts but the "operator" was still living on the place. On 33 tracts, occupancy had ceased but some farming was still going on, i.e., 15 tracts were being cropped but on 18 only hay was harvested. On 40 tracts the family still lived in the house but the land was used for nothing but hay. Since hay is frequently cut long after other agriculture and even occupancy has ceased, it is difficult to determine when haying ceases as an agricultural operation and becomes the "harvesting of wild hay," a permitted use under practically all county ordinances. Some county officials have considered a non-conforming use to have ceased when occupancy and cultivated farming are both discontinued and have notified owners that future occupancy will not be permitted. The burden of proof is thus shifted to the land owner if he wishes to reestablish the

are some 649 isolated settlers in zoned counties for whom a purchase program is recommended by county zoning committees."

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use of the land for any but the uses permitted in a forestry district.

It is not an easy matter to determine when an urban use has been discontinued or its status changed to a less restricted use and courts have handed down some weird decisions because legislation was inadequate or confusing.¹⁶ The case is even more difficult for agricultural discontinuance under the Wisconsin law because both the use of the land and occupancy of the house on the farm are involved. When is a farm "abandoned"? Studies in land utilization show that this is a gradual process, a slow conversion of arable land into grass and woodland often taking decades in the older parts of the United States such as New England and New York State.¹⁷ The same process is in operation in the cutover areas and may or may not be accompanied by the abandonment of the dwelling or by tax delinquency.

Farm abandonment takes place in terms of property relationships, of residential occupancy, and land uses in progressive steps which usually overlap. They may be set down as follows: (1) The owner no longer lives on the place or does so only temporarily. (2) The residence may no longer be occupied but the farm kept in full cultivation in absentia or by being rented by a neighbor. In some cases no rent or only nominal rent is paid. (3) Condition (2) but the land is no longer used for cultivated crops—merely for hay—by either the owner or some neighbor, with or without rent being paid. (4) Only wild or spontaneous hay grown but harvested under same conditions as (3). (5)

No crops or hay harvested in any form—only grazing by the owner or renter, with or without rent. [Farms in the last three stages usually begin to show definite encroachment of woodland; in fact, tree growth may start on the uncultivated areas and pastures from the very beginning of abandonment. A counterpart to all these stages is the progressive depreciation of the buildings, fences, and other improvements on the land.] (6) All visible forms of agricultural land use have ceased. Any of the above stages of agricultural abandonment may precede the abandonment of the residence or, as frequently happens, the place may be occupied intermittently by squatters and others while the agricultural use progressively declines. Somewhere in this progression the land may also "go tax delinquent."

Since non-conformity is based on both land use and occupancy, "discontinuance" must be considered in terms of both. As the study of non-conforming uses shows, out of 358 existing non-conforming uses in Oneida, Langlade and part of Vilas Counties, 303 were occupied and 55 were without a residence, and agricultural operations were of surprisingly small importance—about half having no crops at all and the others often having very small acreages. A high proportion of the non-conforming users made their living in whole or in part from non-farm sources and the land was used more or less as a *place of residence*. Forty-two per cent had no apparent income from land at all. This indicates that too much emphasis has been placed on the use of the land and not enough on residential occupancy—both farm and non-farm occupancy.

Residence and Not Land Use as the Basis for Discontinuance. Since the issue is confused by the dual nature of farming (land use and the home), it has been proposed that residence only be considered.

¹⁶ Alfred Bettman, "A Backward Step in Zoning," *Journal of Land & Public Utility Economics*, November, 1940, p. 455-457.

¹⁷ C. F. Clayton and L. J. Peet, *Land Utilization as a Basis of Rural Economic Organization*. Vermont Agric. Exp. Station Bulletin 357 (June 1933), pp. 31-33.

Furthermore, since the primary objective of zoning is the control of the distribution of population in the interests of economy of government, the enabling act and the ordinances might well be stated in terms of residence. It would simplify administration in several ways. The assessor, building inspector or any other officer charged with checking on discontinuance would place farm residences in the same class with all other residences, whether connected with a store, filling station, tavern, or any other "land use." Two years of complete non-occupancy might constitute a reasonable period in rural areas for a use to be considered discontinued. If this were made a part of the zoning ordinance, the owner or occupier of a farm residence or non-farm residence would then know exactly what to expect. It is argued that stating the restrictions in terms of residence will also prevent a non-conforming land owner of 160 acres on which he resides from dividing the tract into 40-acre farms and bringing three additional families into a restricted area. Owners of vacant land could not use the land for dwellings of any sort, whether in connection with farms, stores, or taverns. Tests of submarginality of the land for agriculture would not be involved in setting up a restricted district and the fear of "stigmatizing land" by putting it in a forestry district would be eliminated.¹⁸

Nevertheless, there are cases where regulations should be stated in terms of land use and, in some instances, *must* be so stated. Keeping settlers out of submarginal land has made a strong appeal to local people and to friends of rural zoning in general. While this can be accomplished largely by prohibiting residences, there is some value in stating the

regulations directly in terms of land use. In the recreational districts the control through restriction of residences is frankly relinquished in favor of direct land use control; year-long residence is permitted while the use of land for agriculture is emphatically prohibited. Minnesota faced the same problem and in Koochiching County a "limited district" was set up to protect recreational areas against "commercial agriculture." In this limited district "no land in excess of one acre shall be used by any person or family for the production of field or truck crops, livestock or livestock products." This will deny the land owner the use of land for farming but permits a garden in connection with residences, resorts, and summer homes.¹⁹

The dual nature of the several land uses in the cutovers has led to the suggestion that occupancy and agriculture be defined as *two separate* non-conforming uses. While the reasonableness of such a procedure would need to be tested in the courts, it appears that the counties might write such a definition into their ordinances and thereafter prevent the occupation of any tract unless such occupancy had been established prior to zoning. Similarly, reoccupation of a tract could be prevented where the residence has been discontinued but agriculture continued. The defining of agriculture and residence as separate uses probably would also allow the counties to prevent the establishment of new year-round residences on tracts already carrying non-conforming year-round occupancy.²⁰

That this does not solve the problems of administration is granted; in fact, it will raise new problems! Under the pres-

¹⁸ See Musbach and Williams, "Rural Zoning in Minnesota." *Journal of Land & Public Utility Economics*, February, 1940, p. 108.

¹⁹ *Ibid.*

²⁰ Memorandum of Martin G. White, Solicitor, U. S. D. A., to H. R. Tolley, Chief, Bureau of Agricultural Economics, May 15, 1941.

ent arrangement tracts which are being cultivated are listed as non-conforming but the owner lives in a nearby city and does his farming "in absentia." But if residence is made the sole test of non-conformity, this tract will not be listed as a non-conforming use; neither will its use for agriculture be a violation of the ordinance, since prohibition would not be stated in terms of agriculture, forestry or recreation. The absentee owner can farm all the land he wants; but the minute he builds a house on his farm and moves his family there he violates an ordinance prohibiting residences in the restricted district. This is presumably in line with the intent of zoning as carried out in the cut-over area. While he lives in the city, no public costs for roads, schools, etc. are involved for the town in which his land is located; but as soon as he moves to his farm, these costs may emerge immediately. But does it appear reasonable to prevent a man from moving to a farm which he has cultivated for a long time and from which the town has received taxes for years? Certainly local sentiment will hardly look with favor on such a regulation.

Period of Discontinuance. After having decided whether discontinuance should be based upon the cessation of the use, or of residential occupancy, or both, the period of discontinuance still remains to be settled. The intent of the Wisconsin law is that a full year of discontinuance is necessary before the use is considered to be legally abandoned. Minnesota allows two full years and some students of zoning have suggested that five years should be the minimum period, together with notice to the owner or his agent of the action contemplated. It was even suggested that no time be set by law or in the ordinances, but that the courts should decide every case on its own merits. It is argued that

the length of time for "discontinuance" might well differ with every land use and that the courts should decide the reasonable period for each case.

However, loose and hazy legislation makes effective administration difficult, if not impossible. Neither the officials nor the land occupiers "know where they stand"; besides the land occupier does not relish the idea of having to go to court to protect his rights. There is much confusion even now with a more or less definite time implied in the law. "I was told," said one farmer at a hearing to reconsider a zoning ordinance, "that if I went to California to see my relatives and left my farm for only one month I would lose my land."

Enough has been said to indicate that clarification is necessary to assist officials in their duties and give the land owner an understanding of his legal relationship to the land in the restricted districts. It is clearly within the power of the county boards to prescribe such rules and regulations.

Date of Occupancy and Use. Another unsettled problem is that of establishing the date of occupancy of a non-conforming use. This is important in making up the list of non-conforming users and in defending the legality of such a use. The date of occupancy may be judged by legal, residential and land use standards.

The process of acquiring land may be as gradual as the process of abandoning it. The settler often buys a farm on a land contract, the deed is issued a few years later, and the mortgage retired still later. Each represents a stage in establishing ownership; one or more of these steps might have been taken before the ordinance was passed, the others after it was enacted. However, acquiring ownership *per se* is no criterion of the legal or illegal "use" of land; all privately-owned

land in a restricted district is owned by "someone"—lumber companies, railways or individuals. Not until they use the land for a prohibited purpose will they violate a rural zoning ordinance.

It is not easy to establish the date of occupancy through "residence." The building of a house on the land does not constitute a violation since the owner may use it only during the summer. In an actual case the owner built a house in a restricted district, lived in it alone for a while, then the family joined him during the summer, and finally he made it into a year-long residence. At what stage did he violate the ordinance? Even if permits are issued, the owner would have no difficulty in getting one for a trailer or seasonal occupancy in a house. Later he might convert the trailer or the house into a year-long dwelling.

Agricultural use may begin with a little clearing, raising a few potatoes, grazing some animals or harvesting hay, and end up with a full-fledged farm, with or without a legal residence being established. At what stage in this gradual process of farm-making is the ordinance violated?

Since clearing of land is an act not connected with forestry or recreation but distinctly a step toward an agricultural use, it has been suggested that clearing more than half an acre in a restricted district might well be considered a violation of the ordinance unless the owner can show that land-clearing was a necessary part of a permitted use, as for instance, a resort or flowage area. This would apply whether the occupier lived on the tract or not.

The ordinance might also be considered as having been violated if the residence is occupied after November 1, or some other specified date, by an individual or a family. Exceptions could be handled by a board of adjustment. Exception might be granted to an unmarried trapper or bache-

lor caretaker at a resort with the understanding that roads need not be plowed out for him and other public services be reduced to a minimum. In other words, "Travel at your own risk!" To be effective, this would require a field check on all non-conforming users in the restricted districts every fall after November 1; but most of the illegal users could be detected earlier by their sending children to school, asking for transportation, or demanding other services.

It is thus intended to use two criteria of violation. The land owner or occupier is not to be disturbed until he has cleared beyond the minimum area of land for agriculture nor is anything to be done if he erects a dwelling or occupies an old one only during the summer. However, occupancy after November 1, or any other date in the fall after schools have started, might be considered *prima facie* evidence that the occupier intends to use the premises for *year-long residence* and therefore is a violator.

Action Against Violators

Assuming that the assessor and the other officers charged with reporting violations, discontinuances and changes in status of non-conforming uses have done their duty, the job of enforcement is not yet completed. The last step will be for the committee of the county board to take action against violators or instruct the sheriff and district attorney to proceed with injunctive orders or "direct action." Of course, these officers have full power to proceed on their own initiative.

The enforcement of zoning ordinances is no slight matter. The Vilas County ordinance says:

"The provisions of this ordinance shall be enforced by and under the direction of the county board of supervisors. Any person, firm, company, or corporation who violates, disobeys, omits, neglects or refuses to com-

ply with or who resists the enforcement of any of the provisions of this ordinance shall be subject to a fine of not less than ten (\$10.00) dollars nor more than two hundred (\$200.00) dollars, together with the costs of action, and in default of payment thereof, to imprisonment in the county jail for a period of not less than one (1) day nor more than six (6) months, or until such fine and costs be paid. Compliance therewith may be enforced by injunctive order at the suit of the county or the owner or owners of land within the district affected by the regulations of this ordinance."

This provision has been repeated in all the other northern county ordinances and indicates the strictness with which zoning violation may be punished.

In judging the effectiveness of the enforcement of zoning administration it should be remembered that the officials in northern Wisconsin have used both formal and informal methods. In fact, only two cases are on record where court action has been used to enforce county zoning, one in Dane and the other in Bayfield County.²¹ In the latter case strictly rural zoning was involved and the municipal court decided in favor of the county. In many instances the county agent, a town chairman, or other official has advised or warned a prospective settler not to move into a forestry or recreation district. In Lincoln County roadside signs point out the boundaries of forestry districts and warn the settler that the area is closed to agriculture. Still other settlers have been directed toward the unrestricted areas by the advertising of railways.²² In

numerous but unrecorded instances, the informal ways of enforcement have prevented undesirable land uses and scattered settlements. In other cases the threat of using the courts or enforcement officers has been sufficient to cause a violator or prospective violator to desist from going any farther in starting a prohibited land use.

On the whole, there is a reluctance on the part of local officials and neighbors to use courts, fines and penalties to enforce county ordinances. Therefore, it has been suggested that the simplest way to prevent the costs of isolation would be to withhold the costly services demanded or made necessary by the modern Daniel Boones. As a matter of fact, many local officials have warned prospective settlers that school and road services would not be provided in the restricted districts. Such warnings have constituted one of the important means of preventing zoning violations.

Even though such threats have been used to warn prospective violators and have been effective, they are extra-legal and perhaps illegal. How far the officials can go in making good their threats is questionable. Certainly, school services cannot be denied to the children and it is doubtful whether other public services can be withheld, although other statutes may be used to regulate the pattern of settlement by indirect methods. For instance, the laying out of roads is a function of the towns and the counties. It is no longer necessary, as it once was (or so interpreted), to provide a road for the settler and this discretionary power was used even before zoning ordinances were enacted. "Everything must be reasonable," said one county highway official and to build several miles of road for one settler he deemed "unreasonable." However, this "power" may be used with or without zoning and is a roundabout way of

²¹ *Manual for Rural Zoning Administration in Northern Wisconsin Zoned Counties*. Prepared jointly by the staffs of the College of Agriculture, University of Wisconsin, Wisconsin Conservation Department and Wisconsin State Planning Board. September, 1941, (Mimeographed) pp. 61-66.

²² An example of this is the folder issued by the Chicago, Milwaukee and St. Paul Railroad, "An Invitation: Make Your Farm Home in Upper Wisconsin and Michigan."

accomplishing what zoning might accomplish directly.²³

Another suggestion for indirect enforcement relates to the legal residence which is ordinarily acquired on one year's residence in a town, village, or city after which the particular local unit of government becomes responsible for the welfare of the family thus "legally settled." Since the ordinances prohibit "family dwellings" in forestry districts (and "family dwellings" are carefully defined as "any building designed for and occupied by any person or family establishing or tending to establish a legal residence or acquiring a legal settlement for any purpose upon the premise so occupied"), it is argued that anyone establishing a home in a restricted district does so illegally and therefore cannot acquire a legal residence. *Ipso facto*, the town has no responsibility toward such a family. Why use an injunction or send the sheriff to enforce an ordinance when the violator can be induced or coerced to leave because he cannot get a road, or transportation for his children or, most important of all to him, he may be denied relief?

How effective this method would be is doubtful. Perhaps relief is the only public service which could legally be withheld if the courts decided that the town had no responsibility toward a zoning ordinance violator. All this would do would be to shift the relief burden to the county.²⁴

²³ Perhaps the power of the counties is far greater than we have suspected under the zoning enabling act. The county board may not only "regulate, restrict, and determine" land uses, but may "regulate, restrict and determine . . . the location of roads, schools, trades and industries . . . [and] the density and distribution of population." These are far-reaching powers when applied in rural areas. The amendments in 1935 also gave counties the right to control land uses and structures along "natural water courses, channels, streams and creeks" which may be used in rural as well as in suburban zoning.

²⁴ Relief is by law specified as the function of the town, village or city; for persons not having a legal

Still other programs are being correlated with zoning and assist in its administration. Policies adopted by the Federal Land Bank and the Farm Security Administration in 1940 illustrate this relationship. The Federal Land Bank has agreed to withhold from the open market for a period of one year lands that are submarginal for agriculture and located in the restricted districts or otherwise designated as non-agricultural land. During this period of one year, public agencies are given an opportunity to purchase these submarginal lands so that they may be permanently retired from agriculture. The Farm Security Administration has adopted a policy of withholding assistance to any family living within the restricted districts if such assistance would tend to establish the family more firmly on the land. Along with this policy, through grants and loans, this agency encourages families to settle in the unrestricted districts where they will be closer to schools and markets and where their chances for successful farming are greater.²⁵

It should also be emphasized that zoning is more than *prevention* of isolated settlement with its excessive costs of public services, and *prevention* of settlement on submarginal land. With the high turnover of occupancy in the cutover area, zoning administration has eliminated non-conforming users and prevented the resumption of discontinued uses which have had positive benefits in reducing public costs and removing people from substandard land.

Violation of the Zoning Ordinances

In spite of efforts to prevent settlement in the forest districts and agriculture in the recreational districts, some settlement

residence the costs of relief are charged against the county. (Section 49)

²⁵ Rural Zoning Manual for Wisconsin, pp. 24-30.

has occurred in violation of the zoning ordinances. In the restricted districts of Oneida and Langlade Counties and the town of Washington in Vilas County, 42 tracts were found by a field check to be occupied in violation of ordinances in comparison with 305 legally occupied non-conforming use tracts. In addition, one tract was found to be illegally used but not occupied. All but one of these violations occurred in forest districts. There was no apparent concentration of these violations in any particular area inasmuch as 16 of the 27 towns had one or more. Since the study was started, some of the violators have been removed by official action or removed from the restricted districts by changes in the boundaries of the districts. The data are of value in future zoning administration because they indicate who the violators are, their background, and why the violation was permitted.

Most of these illegally-used tracts consisted of new settlement on raw land rather than reoccupation of previously discontinued non-conforming use tracts. Of the 43 violations, 33 occurred on undeveloped land and 10 occurred on land that had been used previously. Of these 10, only 4 had at any time been legally established non-conforming uses, the other 6 having been abandoned prior to the enactment of the zoning ordinances. One of these violations occurred in the hope of selling property to a governmental agency or of forcing the county to offer an advantageous land exchange in order to terminate the illegal use. Such violations require especial caution in the administration of any relocation program and indeed of zoning itself.

A large proportion of the zoning violators consisted of persons who were employed in non-agricultural occupations prior to locating in their present posi-

tions. Of the 31 illegal settlers for whom data on this point are available, 22 gave some urban employment as their immediate past occupation, five had been employed in agriculture, and 4 had lived in the neighborhood prior to settlement in their present location. Only one indicated that he had been engaged in forest work immediately prior to present settlement.

In the discussion of zoning, much emphasis has always been placed on the *agricultural* non-conforming user and the threat of violation by settlers who threaten to clear land and operate a "farm." It is significant, therefore, to find that one of the violators had a fish hatchery, one operated a tavern, and two were dam keepers—all "non-farm" occupations. Insofar as the dam keepers are an essential part of the operation of hydro-electric dams, power plants or flowage areas, it is more than possible that the courts would declare them *legal* users. Even more important is the large part the recreation industry plays in the uses made of the tracts occupied. Of the 42 illegal settlers, 19 depended on some phase of the recreation industry for part or all of their income. Twelve had summer cottages for rent. Three families having neither cottages nor cultivated land received some income from the care of summer homes, work in resorts, work as guides, or other similar employment. *All* of them, however, were full year-long residents. Doubtless a number of those having cottages or who did some farming also received part of their income from outside work. Oneida County has an especially large proportion of its illegal non-conforming users engaged in occupations related to the recreational industry. In this county only 3 out of 18 did not report some type of recreational income and 2 of these were completely unemployed.

The importance of recreation to the economy of the area covered by these 3 counties and the frequently close association between isolated location and recreational resources make zoning violations of this nature appear less serious than would otherwise be the case. In many cases the present illegal use may actually be the best use of these tracts, considered from both the public and the individual viewpoint. It may be that, rather than to try to prevent these uses, some of the district boundaries or the provisions of the ordinances should be amended to permit such settlement. In any event, the local officials appear generally to favor recreational development even where the settlement is isolated and costs for schools or roads are high. It is undoubtedly assumed that such development will eventually pay enough in taxes at least to cover the extra costs. It may well be, of course, that the local people are overestimating the value of relatively small recreational establishments.

The non-agricultural nature of the occupancy by the violators is also shown by the fact that only 9 of the 43 reported any cultivated land exclusive of hay. Thirty-seven had no cows, 37 had no horses, and the same number reported no agricultural income. Of the 9 having cultivated land, 8 had less than 5 acres each and the other one had less than 10 acres. The small total number of tracts having any cultivated land seems to indicate that the hope for a substantial income from farming has had very little to do with the zoning violations in this area. This may not be the case in areas having less favorable recreational land.

Nearly half of the illegal non-conforming users—18 out of 42—had no source of income from the tracts occupied; in other words, for them the land was just a place to live. About half of these re-

ported some source of outside work, the others either having none or not reporting any.²⁶

The information obtained on zoning violations was analyzed in an attempt to determine some of the more important reasons for their choice of location. The information is too meagre to do more than suggest some of the ways in which violations are apt to occur and, consequently, indicate ways in which violations might be prevented.

A number of families have moved into the restricted areas without knowing that they were violating any ordinance. Information obtained on the 42 families in the three counties indicates that at least a half dozen know nothing or virtually nothing about zoning. The fact that many of the violators come from industry makes this more likely to occur.

A relatively large group of violators consists of people who in the past have used their places for summer homes only but recently have converted them into year-round residences either for themselves or for caretakers, i.e., changed the use from a legal or less restricted to a more restricted use. In some cases this is a matter of using their former summer homes as a place to retire, in other cases it may be the result of expanding the recreational facilities to the point where a caretaker is needed.

Several cases of violation involved families who established their present occupancy (i.e. residence) and land use after zoning went into effect but who had *owned* their land prior to that time. Other

²⁶ To the extent that year-round settlement is non-agricultural the zoning of certain areas should be reappraised. The problem here revolves around elements other than submarginal farm land. The violations discussed above indicate once more the importance of criteria for zoning administration. See also Leonard A. Salter, Jr., "Transition in the Northern Lake States," *Journal of Land & Public Utility Economics*, February, 1942, pp. 92-96.

families had occupied the tracts prior to zoning and recently reoccupied them after a period of discontinuance. One such family assumed that, although the county already had taken tax title to the land, all that was necessary was to pay the back taxes and then occupancy would be perfectly proper. Other violations of a similar type consist of cases in which a non-conforming residence had been moved onto land added to the original tract by purchase since zoning.

While there is no information to indicate the number involved, there is reason to believe that some of the violations were "winked at" by town chairmen. The basis for this statement is the frequency with which local officials indicated that they considered settlement in zoned areas to be permissible, if school and road costs were not increased. Perhaps zoning has been in effect too short a time for local people to be much impressed by the possibilities of future costs arising from such developments as the sale of tracts to people with large families; sons or daughters returning with children of their own to live with the old folks; or the removal, through abandonment or sale, of neighboring residences, thereby making the remaining farm truly isolated. Having allowed a violation to occur and remain for some time undisturbed, the county will find it difficult, both politically and legally, to evict the family when additional costs finally arise. Under no consideration can the community refuse to provide educational facilities and transportation or board and room near a school for all grade children living more than $2\frac{1}{2}$ miles from a schoolhouse.²⁷ The law applies equally to violators, legal non-conforming users or residents of unrestricted districts.

Finally, local officials may not always be interested in preventing settlement in

violation of zoning ordinances since a large part of the increased costs may be covered by increased state aids. Even though the total advantage of preventing such costs remains, the interest of local people and officials is reduced when a substantial part of the revenues for these services comes from the state.

Warning the Prospective Buyer of Zoning. From the very start the people in northern Wisconsin were concerned with the fact that prospective buyers might buy a tract of land in a restricted district and not know it was zoned. The fact that so many violators were unaware of the ordinance indicates that their fears were well founded. The local people realized that zoning is a drastic measure and even though, technically, "ignorance is no excuse" they believed that it was only fair to notify purchasers and owners of the action of the county board. For instance, the "Langlade County Report" in 1934 recommended, as one of the next steps after zoning, that each abstract of title should carry a notation stating that the property is subject to the zoning ordinance of the county as approved by the town. Furthermore, it was suggested "... that the register of deeds post against each legal description of land in the restricted district a notation or reference to the fact that such description of land comes under the use restrictions provided in the county ordinance."²⁸ This recommendation was repeated in *Wisconsin Circular 281*, "Rural Zoning Ordinances in Wisconsin," published in 1936. Even at that time a number of counties with tract indexes had made provision for the register of deeds to make a notation against each tract of land restricted by zoning. These counties had also filed a copy of the ordinance and map in the reg-

²⁷ Wisconsin Statutes. Sections 40.34 (1) and (4).

²⁸ "Langlade County," *Special Circular*, April, 1934, p. 61.

ister of deeds plat book, thus making them available for use by the public and appraising every user of the plat book of the fact that the county had a zoning ordinance. In counties without tract indexes private abstractors frequently kept track of the restricted parcels of land and included a copy of the ordinance and map in the completed abstract of title.

By 1940 the practice of recording zoning restrictions and amendments in the tract index was in use in about $\frac{1}{3}$ of the 25 counties of the north. In many more the information was being made part of the abstracts of title. The benefit of this practice is somewhat limited in that many purchasers do not go to the expense of securing abstracts. A few counties have gone so far as to send letters to all owners of land in the restricted districts notifying them that their land was now restricted in occupancy and use. In these counties the owner cannot plead ignorance if he violates the ordinance or sells the land to a second party without telling him of the restrictions.

Lincoln and two other counties have placed signs along roads at the boundaries of restricted districts. These signs inform the reader that the area is restricted and that no new settlement is permitted. This practice is highly commendable. The prospective purchaser looking for land cannot help but be aware of land restrictions if he drives over the area—also, it is good advertising for the county. A settler cannot help but feel that the local people are trying to protect him from selecting land unwisely, away from schools and marketing centers and, perhaps, submarginal besides. County forests might be indicated by the same method and for the same reasons, and in addition, stimulate local pride in county owned forests.

Adjustments and Amendments in Rural Zoning

Boards of Adjustment. The third phase of administration is the constant adjusting of zoning to changing conditions. The northern counties have not made use of the board of adjustment but experience indicates that such boards might be useful today. It would seem that some of the trouble with violators or prospective violators could be avoided by submitting the case to a board of adjustment which is empowered to make exceptions within the spirit and intent of the enabling act and ordinances. As already indicated, the board is not mandatory. However, it has been given additional duties by the Soil Conservation Act (Section 92) under which the same body of men is to act as the adjustment board of the county soil conservation district; but under this law, the appointment of the board is mandatory. "In any county which by resolution has been declared a soil conservation district the county board *shall* create a board of adjustment as provided in section 59.99 if such board of adjustment does not exist therein." Thus boards of adjustment are required by law in the 31 counties which were organized as soil conservation districts by July, 1943 (Map I). Since 11 counties have both county zoning and soil conservation districts, the board becomes mandatory in these 11 zoned counties.

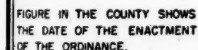
Amendments to Zoning Ordinances. It is a trite saying that planning and zoning are continuing processes. Social and economic conditions are constantly changing and imperfections and mistakes need to be corrected. The enabling act allows changes both in the text of the ordinances and in the boundaries of the districts. So far in the experience with zoning in northern Wisconsin, relatively few amendments have been made in the provisions of the



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The above map shows the restricted areas of the counties which have rural zoning ordinances, with the exception of Juneau County in which only one civil town has been zoned. This map was prepared by the Bureau of Agricultural Economics, U.S.D.A., from the base map of the Wisconsin Conservation Department and the published county zoning maps, corrected for amendments, as of July, 1940.

TABLE I. ACREAGE IN RESTRICTED (amendments adopted prior to November, 1940) DISTRICTS OF THE ZONED COUNTIES OF NORTHERN AND CENTRAL WISCONSIN

COUNTY	Forestry District			Recreation District			Total	
	Original	Additions	Withdrawals	Present	Original	Present	Original	Present
Ashland	314,120		1,280	312,840			314,120	312,840
Bayfield	519,360	1,600	16,600 ^a	504,360	33,040	520 ^a	552,400	537,440
Burnett	128,640		120	128,520	4,960		133,600	133,480
Chippewa	22,120		1,120	21,000	560		22,680	21,560
Clark	126,800	720	560	126,960			126,800	126,960
Douglas	280,320	10,240	52,360	238,200			280,320	238,200
Eau Claire ^c	55,880		1,440	54,440			55,880	54,440
Florence	203,320	13,120	3,360	203,320	16,040	16,040	219,360	219,360
Forest	376,320			386,080			387,320	386,080
Iron	326,400			326,400			326,400	326,400
Jackson	21,120			21,120			21,120	21,120
Juneau	30,600			30,600			30,600	30,600
Langlade	246,530	11,680	7,320	250,890	2,880		249,400	250,920
Lincoln	213,160	4,480	21,360 ^b	196,280	9,740		222,900	206,940
Marquette	209,280	65,320		274,600		2,760 ^b	209,280	274,600
Monroe	56,257		1,040	55,217			56,257	55,217
Oconto ^d	203,640		200	203,440			203,640	203,440
Oneida ^e	354,737	10,520	2,400	362,857			354,737	362,857
Price	294,080	2,640	49,680	247,040			306,640	259,600
Rusk	53,800		5,600	48,200	12,560		59,000	53,400
Sawyer	231,000	171,000 ^d		391,320	5,200	39,960 ^e	237,200	437,160
Taylor	122,160	6,240	10,680 ^e	128,400	6,200		122,160	128,400
Vilas	298,050			298,050			465,985	465,985
Washburn	149,400	3,000	6,560	145,840	167,935		149,400	145,840
Wood	48,760			48,760			48,760	48,760
Total	4,885,844	300,560	181,680	5,004,724	259,115	43,240	5,144,959	5,301,599

^a Includes 520 acres changed from forestry to recreation district.^b Includes 2,280 acres changed from forestry to recreation district.^c Includes 2,560 acres changed from forestry to recreation district.^d Includes 28 acres changed from forestry to recreation district.^e One amendment establishing third year of restricted district of 120 acres is not included.^f One addition of about 10,000 acres which was later rescinded because of questionable legality is not included.

ordinances. A number of counties have found it necessary to correct the definition of a non-conforming use as given in the original ordinances. An amendment adopted by Vilas County permits fur farms in both the forest and recreation district. The most significant change so far adopted has been the establishment of a new type of restricted district in Eau Claire County. This new district consists of a suburban area adjoining the city of Eau Claire and its primary purpose is to prevent the tar-paper type of dwellings. Other northern Wisconsin counties may want to consider amendments of this type for the control of undesirable settlement and inadequate housing conditions in suburban areas and recreation districts, in other words, modify the present ordinance to include suburban zoning.²⁹

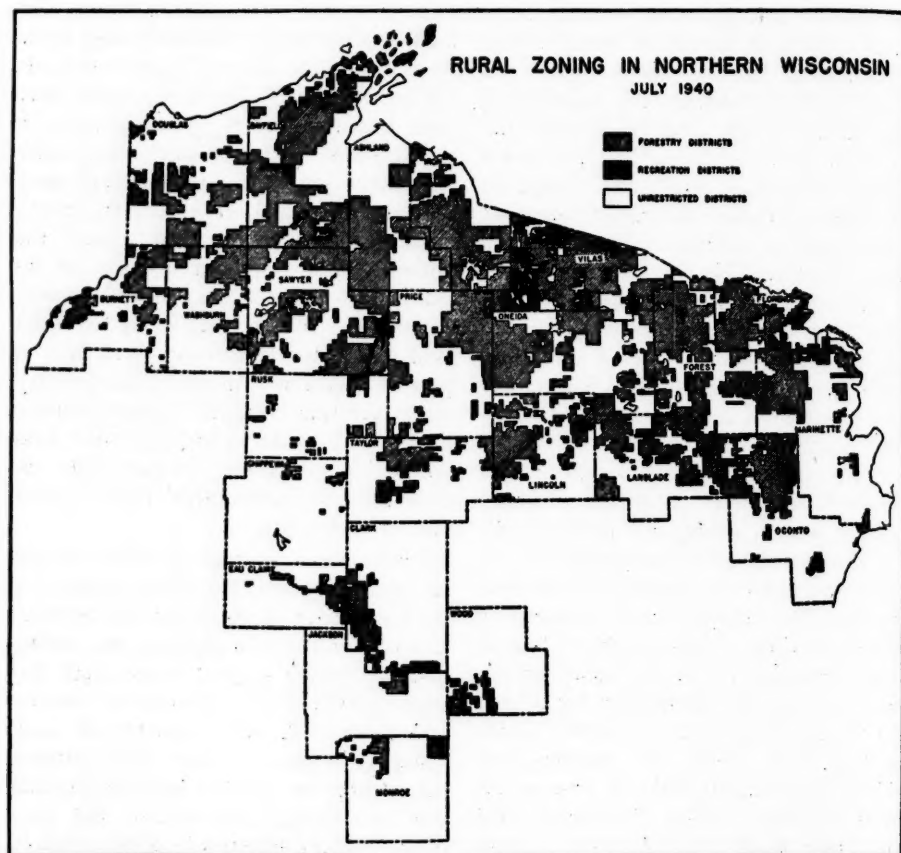
The majority of zoning amendments that have been adopted in the 25 counties studied provides for changes in the boundaries of restricted districts. Some amendments in these boundaries have been made in virtually all the zoned counties. Prior to November, 1940, 12 counties had added approximately 300,000 acres to the forest districts, while 17 counties had withdrawn about 182,000 acres. Lesser changes had been made in the recreational districts, with 3 counties adding about 43,000 acres and 4 counties withdrawing about 5,000 acres (Table I). Included in these figures are 10,000 acres changed from forest districts to recreation districts, and 280 acres withdrawn from recreation and placed in forest districts.

A significant feature of amending the boundaries of the restricted districts has been the withdrawing of rather densely settled areas originally included in the for-

estry districts. As indicated above, 288 settlers who were non-conforming users were made "conforming" by this process. On the other hand, the largest areas have been added to the restricted districts, a practice that should be accelerated under the present program of relocation of manpower. As stated in a former article, county boards might well extend the boundaries of restricted districts to include land from which isolated settlers have moved. In fact, there is still too much land "open for settlement," i.e., not in present farms nor in restricted forestry and recreation districts. Some counties having as high as $\frac{1}{3}$ to $\frac{1}{2}$ of their land "open for settlement" cannot have included all the submarginal land in their restricted districts.

Furthermore, enough time has elapsed to require a complete reexamination of the boundaries of the restricted districts. A study of the map showing the zoning districts reveals a great many small districts, particularly in the central counties and those with more agricultural land. (Map II.) Most of these small districts can perhaps be justified because the land was considered submarginal, but they offer distinct difficulties in administration. Many of them contain non-conforming users; in fact, in one county there is a district so small that it consists of only three farms and since all of them were occupied when the ordinance was passed the entire tract is "non-conforming." There is no justification in spending money to relocate the "settlers" nor in maintaining the district. Many such districts would be too small for forestry purposes even if all the land were made conforming. It is also doubtful whether the courts would uphold a district consisting of a few farms; it has all the appearance of singling out individual farms and not a "district" for restriction and regulation.

²⁹ See "Suburbs Now Sprouting in the North," in *Annual Report of the Director, University of Wisconsin Agricultural Experiment Station Bulletin* #456, December, 1942, pp. 25-27.



The opposite situation arises where a small unrestricted district forms an island in a large restricted area. The present number of residents may be too small to constitute an economic community, and because of the large area of forest land which surrounds them, they may be far from markets, villages and railway stations. The dilemma is to decide whether the non-restricted district should be added to the forestry district and devoted to some form of land use not requiring residence, or whether it should be enlarged as far as the quality of the land will permit and additional resources be developed,

with public assistance if necessary, so that the community can be made large enough to be relatively self-supporting. The Nema community at the northern tip of Forest County is an example.³⁰

Procedure in Making Amendments. According to the Wisconsin enabling act, amendments to the act must be enacted in substantially the same manner as the original ordinance. Approximately 65 amendments relating to district boundaries had

³⁰ V. Webster Johnson, Sidney Henderson and James Marshall, "A Land Program for Forest County, Wisconsin," *U.S.D.A. Technical Bulletin #689*, 1939, p. 57.

been passed by 1940 by the county boards of the 25 counties studied. Information available in the public records indicated that the officials did not always follow exactly the steps required by law. A more general understanding of all the steps required in amending zoning ordinances, and a more general following of such steps, are necessary if a great deal of difficulty is not to be encountered later in the enforcement of zoning provisions. So far, only one case actually has gone to court in these counties but more may be expected, and the failure of cases because of improper procedures in making amendments would be most unfortunate.³¹

Suggested Changes in Amendment Procedure. Probably the first step to be taken should be a revision of the section of the county ordinances relating to amendments to bring them in line with the enabling act; not all of them are in agreement now. It might also be advisable to revise the amending procedure of the state act itself in light of past experience. The importance of this cannot be over-emphasized. Much of the future work in zoning will consist of amending zoning boundaries, changing the regulations and restrictions of the districts, and perhaps creating new districts. Furthermore, since towns can come under an ordinance after its enactment by the county board only through the amendment procedure, this is another reason for making this section of the enabling act and the ordinances "fool proof" and as simple and direct as possible.

It would seem as if the procedure might vary with the type of amendment. A change in the land use regulations or the creation of a new type of district is of

county-wide importance since all towns with restricted lands would be affected or might be affected if they later chose to come under the ordinance. Amendments of this type should therefore go through the same procedure as enacting the original ordinance. On the other hand, once an ordinance is enacted and the official map has been adopted by the county board, a town wishing to accept the ordinance and the land use districts as set forth on the official map might be admitted to the company of the towns already under the ordinance by the simple method: (1) formal action by the town board asking to be admitted under the ordinance and districts as delineated by the board of supervisors; and (2) approval by the county board without the approval of the boards of the other towns. If the zoning committee has reasons to believe that the town board in asking admission is not representing the wishes of the people of the town, hearings may be held or a special town meeting ordered so the people may express themselves.

The power of town boards to decide whether a town should or should not adopt the ordinance reduces county zoning practically to *town zoning*. This, however, has not been a serious matter in northern Wisconsin where practically all the town boards promptly agreed to come under the ordinances before they were enacted. This is not true for southern Wisconsin and has resulted in "spotty zoning" in some counties. States which do not have the dual county-town form of government should not have this difficulty; those that do will do well to consider the relation of the town to the county in their enabling acts. In Wisconsin the relation of the town board to the county board of supervisors in zoning procedure is not at all clear and needs clarification in the enabling act itself. This needs

³¹ The Zoning Manual mentioned above should be of material assistance to counties amending these ordinances.

further consideration, beyond the scope of this article.

Summary

"The only trouble with zoning is that it was not started 25 years ago," is the statement of a northern Wisconsin county board official recently. This expresses the feeling in the north with respect to all the land use adjustments—zoning, resettlement, county forests, and public land management. The spirit back of these movements is sound. The local people who promoted zoning were aware of its purposes and implications. This is shown by their desire to protect the legitimate interests of private owners and future buyers. Many believe that the real accomplishment of zoning is not in the enactment of the ordinances but in the spirit behind a movement that has closed one-seventh of the area of the state to agriculture and year-long residence in an area which only a quarter of a century ago was in an active agricultural land boom.

However, *spirit* is not enough. Regulating and restricting the use of land and of occupancy, the elimination of non-conforming uses, the prevention of the reestablishment of discontinued uses, getting out an injunction to stop the shifting from a conforming (or less restricted) to a more restricted use, are all technical matters which must meet the test of legality or they will be useless and may jeopardize the constitutionality of the ordinance itself.

The first ordinance had hardly been enacted before questions of administration came up. This article has outlined the evolution of the problem and the gradual development of machinery to cope with it. It is apparent that much more needs to be done. That violations have taken place and that the administrative machinery has not functioned smoothly is not an indica-

tion of the failure of zoning; it is an indication that there is further work to be done to correct the machinery and procedures and to do as effective research and educational work on the administration of zoning as was done in connection with the enactment of the ordinances.

It is also important to consider rural zoning and the other land use programs in their setting in time. Rural zoning began after the back-to-the-land movement following the urban depression had about exhausted itself. Effective supplementary programs of the forest crop law, county forests, resettlement and the federal programs made administration relatively easy, as shown by the almost automatic discontinuance of non-conforming uses. Relocation of manpower during the present war has accelerated the process and offers the counties the opportunity to enlarge the restricted districts and carry out other supplementary programs, including effective public land management.

Experience with recreational land zoning indicates that this form of zoning should move in the direction of more effective restriction of land uses. There is evidence that in many parts of the north the local people are ready for this. Now is a good time to plan the better use of recreational land in anticipation of a heavy demand for this form of land in the post-war period, similar to the boom of 1925. Also there are indications that some of the counties of the north may want to zone the land in the rural-urban fringe around the larger cities. In fact, the present restrictions based upon the simple "forestry" and "unrestricted districts" have been found to be inadequate.

The prediction has come from some quarters that there will be a back-to-the-land movement after this war is over. If this is true, the Lake States may expect a considerable number of prospective settl-

ers. Soldier settlements with public assistance are also a possibility. Should there be a considerable number of settlers, zoning can become truly *directive* and not merely preventive. In spite of the "5 million acres closed to agriculture," there are still other millions not in farms and outside of the restricted areas. This is the land "open for settlement" yet much of it is also submarginal for agriculture and should be restricted if zoning is to prevent settlement on land because of soil quality, location and isolation. Such zoning not merely classifies land but it actually makes it illegal to settle on submarginal

land! However, should a real pressure for land develop, the counties may be put under the severe task of trying to maintain zoning boundaries intact, maintaining their county forests and keeping other non-agricultural land in public ownership. People may insist on moving into the restricted districts to establish farms, resorts, taverns, and year-long residences in disregard of the zoning ordinances. It will be in a time like this that the legality of ordinances, their administration and enforcement will be put to the test.

III. Incremental Cost Control Under Public Ownership

By EMERY TROXEL*

PREVIOUSLY, through the pages of this *Journal*,¹ we inquired into the control of rates of private utility companies by means of incremental costs, rather than by traditional pattern of price regulation. The conclusions reached did not encourage adoption of the incremental cost pattern of rate regulation. The incremental cost rule is not certain to be compatible with freedom of private utility firms to make investment decisions. This is the essence of the dilemma regarding its use. On the one hand, the pricing procedure is designed to realize *use*—that is to say, socially-conceived use of public utility plant rather than avoidance of receiver-ships. On the other hand, public utility management is motivated by revenue expectations and protection of investment values instead of plant output. Thus, the management of a utility firm operating over the long period would be restrained in undertaking plant expansion, and the quality of service probably would deteriorate. Only when there is no alternative, as in the short run, may there be acceptance of a reduced provision for depreciation and capital charges under the rule.

It is suggested, however, that this method of rate control can be used more effectively for publicly-owned utility plants. While there may be administrative complications and problems under

public ownership as under private ownership, the management of a public plant need not have the same purposes as does the private operator. There is no equivalent force, except as Congress fixes the requirements, that compels the public operator to seek maximization of net return or to respect past investments in plant. Nor is it always necessary to show a profit from public output. For instance, in the case of electric plants financed by the federal government, there is no imperative need for self-liquidating investments. Thus, it seems possible that public plants, particularly those already in operation, may be administered with careful regard for social efficiency and for fullness of plant use.

The Rule and Its Acceptance

Some of the significant features of this pricing rule are outlined herewith. Initially, the rule is best understood and perhaps most appropriately used in connection primarily with utilization of an existing plant. The installed plant may be viewed simply as a datum for the purpose of exemplifying the procedure.

The basic feature of the pricing rule is the equation of the price of the publicly-produced product and the incremental cost of producing it. It does not follow, however, from such an admittedly simple version of this pricing pattern that a uniform price is fixed for all units of output. This is improbable in the sale of electricity or of other utility services. Yet, for the purpose of stating the essential characteristics

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¹ "Incremental Cost Determination of Utility Prices," *Journal of Land & Public Utility Economics*, November, 1942, pp. 458-67; "Limitations of the Incremental Cost Patterns of Pricing," *Ibid.*, February, 1943, pp. 28-39.

of the rule, it may be imagined that some average of prices for the product is equated to incremental cost, even where differential pricing may actually exist.

Pricing according to incremental cost does not require careful concern for what, wisely or unwisely, has been spent on the public plant. The price is not consciously fixed to cover the provision for depreciation. Nor is the price fixed deliberately to provide for interest payments on the public funds put into a project.² The funds invested in the plant are treated as though they were "water over the dam."

But plant revenue may exceed current expenditures. If there are no physical changes in the public plant, the short-run incremental costs can be small. A hydro project which experiences no changes in transmission and distribution facilities may have only imperceptible increments in expenditures respecting increments in output. When there are enlargements in transmission and distribution equipment, increments in cost may be substantial, of course. If the increments in cost are increased as plant capacity is equated to an increase in demand, the price is raised. Under these conditions a plant rental is obtained. This rental, measured for a period of operations as the difference between total revenue and total variable cost for the period, becomes larger as the plant is more fully utilized.³ Thus, some of the plant investment may be retrieved even though no attempt is made to calculate the rental for the purpose of retrieving the investment.⁴ The rental is price-

determined rather than price-determining. Yet an administrator of a public plant may consider himself fortunate if he can fully utilize his plant and still receive sufficiently large plant rentals to amortize the public investment. It is certainly not a misfortune that the revenue from electricity of the Boulder project, avowedly built for more important purposes than electricity production, may provide for amortization of most of the investment in the whole project.⁵

Full Use of Plant. A strong case may be made for public use of this pricing procedure in connection with public plants. The basic objective of its use is equation of plant capacity to the demand for it. Fullness of use of existing public plant is being sought by the administrator who selects equivalence of incremental cost and price as a rate-making rule. Use of the rule promises greater use of existing and excessive plant than is possible when depreciation and return provisions are regular determinants of prices.

If any agency in our society has a responsibility to use the resources at its disposal as fully as possible, it is a government agency. Presumably there should be some social perspective in the use of the property of the federal government, if not of all governmental units. Consequently, once a public plant is ready to operate, there seems to be a defensible social purpose in intense utilization of even an unnecessarily large plant. After plant construction is completed, political leaders and project administrators do not contribute to social benefits if plant output is restricted in order to secure the largest possible return on plant investment.

Several of the federal power projects afford special opportunities for enlarge-

² Cf., A. P. Lerner, "Statics and Dynamics in Socialist Economics," *Economic Journal*, June, 1937, p. 265.

³ Determination of the rental is graphically illustrated in the chart which appears in the first installment (this *Journal*, November, 1942, p. 464).

⁴ Cf., Harold Hotelling, "The General Welfare in Relation to Problems of Taxation and of Railway and Utility Rates," *Econometrica*, July, 1938, pp. 264-5.

⁵ Cf., Paul L. Kleinsorge, *The Boulder Canyon Project* (Palo Alto: Stanford U. Press, 1941), pp. 114, 142-6.

ment of social benefits by use of this procedure. Though all of the well-known federal power ventures, except possibly the Boulder project, appear to have some unused power capacity according to peacetime measurements, the Columbia River projects illustrate particularly well the social advantage of price control for the purpose of greater or even full use of plant capacity. The Bonneville project, surrounded by an admittedly-meager, rural and domestic market, is being utilized quite inadequately—aside from industry consumption and at rates which probably are considerably above prevailing incremental costs. The Grand Coulee project has an ultimate generating capacity of almost 2,000,000 kilowatts, a sum which exceeds the total of all other installed generating capacity in Washington, Oregon, and Idaho.⁶ Elsewhere there are similar problems of using public plant capacity. The Fort Peck, the Kendrick, and some of the Texas projects are in sparsely settled regions, far from large markets for electricity. The electricity produced by the Big Thompson irrigation project may either be sold to private companies or be wasted; and the managers of other projects, such as Little T. V. A. in Nebraska, are troubled to find adequate retail markets for electricity. All of these instances of excessive electric plant capacity are possible places for the use of the incremental-cost rule. It may be better to have greater rural, metallurgical, or domestic use of cheap electricity in the Pacific Northwest and elsewhere than to waste plant capacity. It may be better to have home heating with low-priced electricity than to have an idle plant and higher revenue.

⁶ In 1937 the installed generating capacity of all private and municipal plants in Washington, Oregon and Idaho was 1,606,131 kilowatts. (U.S. Dept. of Commerce, *Census of Electric Industries, Electric Light and Power Industry*, 1937) pp. 47-50.

Acceptance of the Pricing Rule. There are many precedents in public pricing for a disregard of part investments in public plant. For instance, toll bridges and toll highways are no longer common. Tolls are rarely collected for the use of improved waterways. Most waterway investments may be traced to political manipulations of river and harbor appropriations. And after the funds are invested, attention is generally given to realization of enlarged use of the waterways. Furthermore, some of the new federal power projects are accompanied by flood control benefits for which no charge is made. Not even a nominal assessment is made for these benefits. Electricity can scarcely be so different from these other services that an investment-liquidating price is fixed for electricity while no charge is made for flood control or use of improved waterways.

There is some evidence of an intent to pursue social objectives in administration of the federal electricity ventures. The "widest possible use" of electricity is a commonly-expressed purpose. Furthermore, the laws authorizing new federal projects usually provide for a preference for rural cooperatives and municipally owned systems. "The projects . . . shall be considered primarily for the benefit of the section as a whole and particularly the domestic and rural customers . . .," an objective which leaves the industrial buyers in a secondary position.⁷ Even small buyers should "have a chance to buy some low-cost power."⁸ On the other hand, Mr. Lilienthal, one of the administrators of TVA, is ". . . interested distinctly . . . in

⁷ *Tennessee Valley Authority Act*, 48, Stat. 58 (May 18, 1933), p. 11.

⁸ *Engineering Report of the Joint Committee investigating the Tennessee Valley Authority* (76th Cong., 1st Sess., Sen. Doc. 56, pt. 3, 1939), p. 244.

charging as high as the traffic will bear to the industrials."⁹

Unfortunately, these proposed social dimensions of public plant operation do not extend to the whole pricing policy for publicly produced electricity. It is the intention of Congress to make TVA self-supporting "as soon as possible."¹⁰ Furthermore, according to the Act, even "... the surplus power shall be sold at rates which, ... when applied to normal capacity of ... power facilities, will produce gross revenues in excess of the cost of production." The Authority is compelled to rationalize an allocation of plant investment to the power purpose. And, despite an unpromising market for moderately-priced power, approximately 57 per cent of the investment in the Bonneville project is allocated to power production.¹¹ Like private investors, public policy makers have their eye on the revenue rather than utilization of power projects. They want pricing objectified to return the public investment.

Perhaps the calculation of investment-liquidating prices is politically expedient. It unquestionably provides some insulation against political attacks. Perhaps it is partly a product of the policy, supported strongly in some high places, of making public power rates the comparative standard for private company rates. Perhaps it is chosen to some extent because it is believed to be the "proper" means of public product pricing. Whatever may be the explanation of the choice, attention is given to the plant revenue rather than resource use. Thus, a notable barrier stands

in the way of adoption of incremental cost pricing.

Some Problems in the Use of the Rule

Current public policy concerning the pricing of publicly produced electricity is unquestionably opposed to use of incremental cost pricing. There is, in fact, no likelihood of immediate adoption of this form of pricing for federal power projects, regardless of the amount of excess plant capacity. Still, on theoretical grounds it may be well to examine some of the limitations of equating public plant prices to incremental costs.

Computation of Incremental Cost. It may be quite as difficult to gather incremental cost data for public plants as for private firms. Accountants seldom compute these kinds of cost data and, of course, governmental accounting systems are not arranged today so that this information is readily available. But it should not be impossible to make some rough measures of incremental costs. Even approximate incremental costs may be sufficient for initiation of the policy, whereupon experience with the rule should contribute more incremental cost information. At any rate, inaccuracies of incremental cost data do not seem to be as significant in the case of public plants as if the pricing rule were being applied to private companies.

Irregularities of incremental cost changes present a further difficulty. In the short period some "bumpiness" may be expected in expenditures, necessitating some averaging of the irregularities. Averaging of incremental expenditures may be used when, for example, a transmission line is being extended. No one would think of charging the whole of the increment in construction cost of a line to the

⁹ *Hearings before the Joint Committee on the Investigation of the Tennessee Valley Authority.* (75th Cong., 3rd Sess., pt. 2, 1939), p. 783.

¹⁰ The TVA Act, Sec. 14.

¹¹ Cf., Bayard O. Wheeler, "Production and Distribution of Bonneville Power," *Journal of Land & Public Utility Economics*, November, 1938, pp. 363-4.

first kilowatt-hour of new service or to the first new customer. Nor is the new line necessarily built in a piece-meal manner for the purpose of having a measure of incremental costs of the smallest possible increments in output. Instead, incremental costs may be computed with respect to a group of buyers, several miles of lines, whole rural cooperatives.

We also meet the problem of computing incremental costs when several plants of dissimilar efficiency exist in a single public project. The output of each plant may, of course, be priced according to its respective incremental cost. But this solution is impossible if some measure of rate uniformity is to prevail. The problem may be resolved empirically by selecting some average of the incremental costs of the several plants as the means of price determination. Having fixed the common price, the administrator utilizes the least efficient plant less fully than the others; and all plants are utilized, presumably, until there is a common incremental cost at the several margins of operation.

Some General Limitations. The objective of full use of public plant is subject to technical limitations. Indeed, a definition of full use of plant has technical features. A hydro project has a greater water flow in some seasons than in others. And the demand for electricity is partly a function of the time of day or season of the year. Public plants, like private plants, have irremovable peaks of electric sales. Because of such technical characteristics of the pricing problem, full use of public plant in the sense of utilizing every possible unit of output is impossible. Equating prices to incremental costs reduces, but does not wholly eliminate, unused capacity.

Another technical problem concerns the quality of service when fullness of plant use is approached. As use of an existing

plant is intensified, the quality of service may deteriorate. At the same time, prices are rising because the incremental costs are higher. Buyers will not like the idea of paying higher prices for deteriorating service. This effect can be avoided, however, by construction of additional public plant. That is, it can be avoided if administrators and Congressmen alike are willing to forego further increases in the plant rental.

Another limitation concerns the application of the rule in instances of plant expansion. Some enlargements of plant are necessarily associated with achievement of larger use of plant capacity. Federal power projects sometimes cannot be more completely used unless further construction of transmission and distribution facilities is undertaken. Expenditures of this sort are important in measurement of incremental cost. Yet plant expansion, at least in the sense of construction of more large units of plant such as additional dams and powerhouses, cannot be regulated altogether by the incremental cost rule. In fact, power plant expansion may be controlled by other political or social considerations. Where there are multi-purpose projects, the expansion of power-generating facilities may be tied to public provision for flood control or irrigation. In any case, a public power project competes for more public funds with reforestation, agricultural rehabilitation, military projects, or any of a multitude of ways of spending public funds. Whatever the various determinants of public investments may be, one point is clear: The incremental cost rule of pricing does not control all of the limits of public plant investment. It may control the purchase of an additional generating unit for the Bonneville dam, but it probably does not control the construction of another dam on the Columbia River.

Consideration of Demand. It is not enough to measure incremental cost changes. Demand behavior, too, must be studied. For one thing, account must be taken of the elasticity of demand when the price is set. Having the objective of full, but not too full, use of plant capacity, the administrator wants to know how much output is increased with each price reduction. He wants to set his prices at the points where buyers will make no less and

large rate reductions.¹² Furthermore, within a period of a few years the demand for TVA power seems to show a surprising degree of elasticity. If increases in total expenditures of buyers and in the average annual consumption per buyer are examined for communities with at least five years of TVA service, the results are as indicated in the tabulation.¹³ Even though these data are not corrected for increases in demand, the apparent evi-

TIME PERIOD	Change in Buyers' Total Expenditure	Average Kw.-hrs. per Buyer
Prior to TVA Service	100.0%	516.2
First Year of TVA Service	71.0	831.0
Second " " " "	108.2	1155.6
Third " " " "	136.5	1334.5
Fourth " " " "	165.8	1486.7
Fifth " " " "	193.1	1522.5

no more than full use of plant capacity. Thus, the elasticity of demand is an important fact. Its significance is easily illustrated. Suppose the administrator with excess plant capacity guesses that buyer demand is quite inelastic. If so, he orders a drastic reduction of prices. But suppose, as a consequence of actual buyer response to the low prices, that buyer demand turns out to be elastic. Buyers are seeking more electricity than the available plant can possibly furnish them. Consequently, the administrator must correct his mistake either by raising prices or by expanding plant.

The demand for electricity, particularly for residential uses, is inelastic in the short period and within at least some price limits. For a longer period of time and within low price limits, the demand for electricity may be elastic, even for domestic purposes. For instance, in the case of TVA it is estimated that it takes from five to eight years to realize fully the change in consumption that accompanies

dence of considerable elasticity of demand for low-priced electricity indicates a need for careful demand studies before prices are fixed.

There must be some study, as well, of possible increases in demand for electricity. The administrator must be cognizant of the importance of examining possible changes in population, rising regional income, technical and price changes in consumer appliances, and wider acceptance of the uses of electricity. The Grand Coulee project represents a special case of waiting for the full development of a regional market. An uncertain number of years will pass before development and settlement of the Columbia Basin are fully realized. Meanwhile, the price of Coulee electricity must be calculated in the light of these ultimate increases in demand for

¹² *Second Annual Report, Bonneville Power Administration*, 1940, p. 26.

¹³ *Annual Report of the Tennessee Valley Authority*, 1940, pp. 93-5. The group includes 6 municipalities and 5 cooperatives.

electricity unless the conclusion be reached that the electric facilities will never be fully utilized even when prices are equated to very small incremental costs. In any case, the problem appears to be one of equating long-period demand to existing plant capacity.

Taking long-period conditions into account makes the task of fixing the price an uncertain and difficult one. Perfect measurement of such prices is impossible. There are bound to be unknown conditions of future demand; the number of buyers, the income of the region, and the alternative choices for buyer expenditures are not accurately predictable. Thus, there will be a measure of guessing about future demand. It may be necessary to resort to a trial-and-error procedure, i.e., to successive approximations of prices for realizing optimum utilization of the existing public plant. As each price is chosen, the not fully known effects of the choice in terms of increments of output and cost will have to be watched. And if such an empirical basis is used for price revisions, it would seem wise to use price approximations which are likely to be too high rather than too low. As in the case of private-firm operation, there probably is more buyer resistance to price increases than there is pressure for price reductions.

Limits of Price Change. In most instances it may be unwise to make frequent changes in the prices. Buyers of electricity may be cautious about taking up new uses of electricity when prices are in flux. If they are induced by temporarily low prices to purchase stoves and other appliances, electricity buyers are irritated by price increases. Furthermore, frequency of price revisions, wrongly suggesting an uncertainty or inexactitude in the pricing policy, may encourage political investigations. Thus, it may be well to ignore impermanent changes in demand for plant

output. For instance, it may be advisable to ignore most cyclical changes in demand.

Some further considerations about minimum prices under a plan of equating prices and incremental costs need to be taken into account. Theoretically, incremental cost fixes the floor for price. But plant capacity may be so excessive that it is not fully utilized when the price is equal to incremental cost and when there is no plant rental. The Grand Coulee plant again may serve as an example. After deductions are made for power used in water pumping and in an ultimately well inhabited Columbia Basin, it may be difficult to dispose of all available Coulee power at prices equal to incremental cost and average variable cost. If the objective of full use of plant is pursued, the administrator—in effect—is continuing to invest in the project. Total revenue is less than total expenditures. There can be a social basis, of course, for incurring such losses, just as the inland waterways are maintained from year to year out of public revenue. The benefits of electricity to consumers would be emphasized; and the loss of revenue would be ignored. If so, there would be relaxation of strict application of the incremental-cost rule.

If a use-class or geographical group of buyers has received publicly produced electricity for a number of years, it may believe that the service should continue regardless of costs. Having made such a commitment, the administrator or Congress may feel compelled to maintain the existing rate of output even though economy in the use of public funds suggests contraction of plant size and output. It has often been easier for Congress to make than to escape a commitment. Once a waterway is improved, for example, there seems to be little chance that its maintenance will be neglected. Rarely are any of the forms of farm assistance pared

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down. Consequently, the administrator is mistaken if he follows the economist, who too easily concludes that contraction of public plant is a simple affair. It would be a much better policy to abandon the objective of full use of resources in the short-run. That is, in the short period electricity prices should be kept above full use figures so that long-run inefficiency of use of public funds may be avoided. At the same time, it is well to remember that prices for publicly produced electricity are more easily lowered than raised.

Similarly, there are limitations on the height of prices. When the objective is one of equating demand and plant capacity, it is necessary to remember that the demand and prices for alternative, competing services restrict increases in public plant prices for electricity. For instance, the contract price of Boulder Dam electricity, sold to distributing agencies that already owned generating plants, was calculated according to the cost of fuel-oil generation of electricity.¹⁴ The price of Boulder electricity had to be low enough to justify relegation of these generating plants to stand-by use. Or private plant prices for electricity may often fix the upper limit of public rates when production conditions for the two plants are similar. Otherwise, there are certain to be political attacks on the incremental cost rule of pricing.¹⁵

Summary

For public plants the incremental cost rule affords a better social concept of pricing than the objective of liquidating public investments. It offers a manner of pricing that will increase the use of those public plants which have much unused capacity. But it is not yet an accepted pricing policy. Public policy makers have shown no disposition to accept this or any similar pricing policy. According to what one can perceive of their thinking, they have put the objective of liquidation of public investments ahead of the purpose of full use of existing plant. Acceptance of the incremental cost rule is doubtful for another reason. It is not a simple administrative task to equate prices to incremental costs. It is not easy to measure increments in total cost; the behavior of demand—the future changes in demand as well as the elasticity of demand—must be studied; and there are conditions other than incremental cost which limit the range of prices of public plants. It would seem, therefore, as matters stand now, that even our federal public power projects with their excess capacity will not be permitted to experiment with incremental cost pricing.

problems are: measurement of incremental cost for each locational or use class of buyers; the practice of discriminatory pricing as reflected in reductions of prices where demand is elastic and in increases of prices where demand is inelastic; and modification of the incremental cost rule to achieve region-wide uniformity of prices.

¹⁴ Kleinsorge, *op. cit.*, pp. 142-6.

¹⁵ The relation of the incremental cost rule and differential pricing, which is not discussed here, presents further administrative problems. Among these

A Pattern of Successful Property Tax Administration: The Wisconsin Experience —

II. Central Assessment

By HAROLD M. GROVES* and A. BRISTOL GOODMAN**

Introduction

THE property tax is a hydra-headed institution sometimes described as a locally-administered, state-and-county-shared tax. It could be described more accurately, perhaps, as a local tax with county and state supplements. The fact that central governments levy on a locally-determined base creates many problems in property tax administration. Often it sets county against city, leads to wholesale competitive undervaluation, and disrupts the efficiency of the entire assessment process. Various ways of meeting the problem have been attempted or proposed. Some believe that the centralization of the administration of the property tax in the state would largely eliminate the intergovernmental problem and that centralization in the county would reduce it. But this remedy is not acceptable to the majority of people. The system employed in Wisconsin is one of the central assessment with refined techniques for doing the job at a minimum of cost and a maximum of precision. The purposes, development and operation of that system will be examined in this article.

Equalization—or central assessment, as it is termed in Wisconsin—is merely one phase of the assessment of property for tax purposes. It is the duty of assessors to equalize valuations of individual properties according to the criterion of value prescribed by law. Were all assessors

thoroughly competent and working under ideal conditions, the task of equalization itself would be fulfilled with the completion of the assessment roll. Because all assessors are not thoroughly competent and because the conditions under which they work are not ideal, the need for further equalization does arise.

But *equalization* is not to be confused with *review*. As the terms are used in Wisconsin, central assessment involves the valuation of districts as such, for the purpose of apportioning the taxes of the central units of government. Review involves the quasi-judicial adjustment of the assessment of individual taxpayers. The two institutions are mixed more or less indiscriminately in some states, a fact which we believe is not conducive to good property tax administration.

Central assessment in Wisconsin directly affects only state and county general property taxes. It does not immediately alter town, school, city, or village taxes. In 1939 total county taxes amounted to 33.85 per cent, and state taxes to .8 per cent, of the total general property taxes. Apparently 65 per cent of the general property taxes in 1939 were thus not affected directly by equalization. But, as will be seen, equalization has indirect effects of a very high order upon all general property taxes.

Development of Central Assessment

During most of the period before statehood, the territorial government of Wisconsin was financed largely by a levy on

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counties equal to 5 per cent of the property taxes which each county raised for its own purposes.¹ Consequently, there was no need to value property for state tax purposes. When, in 1845, the territorial government attempted to effect a transition to the value of property as a basis for determining the relative amount of taxes to be levied on each county, it was confronted with the necessity of determining the relative value of counties. No information was readily available for this purpose, not even the aggregate assessment by counties. Hence, the first efforts were directed toward securing this assessment information. It was soon recognized, however, that the local data were a very imperfect index of the territorial distribution of wealth, and that to use unadjusted local assessment data to distribute central taxes, and with no effort to correct inequalities, would reward most those counties which, by undervaluation, had departed most from the law. Accordingly, the legislature of 1852 provided for a state board of equalization.² The board was powerless and ineffective until 1854 when the law made provision for enforced returns from local assessors.³ Until 1858 this board consisted of state officers, such as the governor, secretary of state, attorney general, and so forth, who served in *ex officio* capacities.⁴ Early boards had a difficult task. The negligible degree of local cooperation is indicated by the fact that many counties persistently neglected or refused to make returns of assessment information. When the state board began its work, only about half of the counties were making returns and not all of those rendered were in conformity with the

law.⁵ In 1854 the secretary of state declared that any attempt to equalize on the basis of such incomplete information obliged members of the board to "draw more largely than they desired upon the discretion allowed them."⁶ One observer, writing in 1905, claimed that the board of 1872 was the first one to have before it a complete set of returns.⁷

In addition to these missing and incomplete returns, early boards were handicapped by the dearth of other information which has since proved helpful in the work of equalization. In 1869 the secretary of state reported that the legislature had required the assessor to gather statistics concerning the number and kind of properties, as well as their value, and that these data were being reported.⁸ Some data of this sort were also available in the census reports. The regular reporting of sales of property, which later became the "king pin" in the equalization process, was recommended as early as 1852,⁹ and finally became a law in 1873.¹⁰ Although certain sales information was published annually thereafter in the secretary's reports, there is no evidence that any extensive use was made of it before 1899.

The fact that state and county equalization was admittedly crude and weak was responsible, not only for the maldistribution of state and county taxes, but also for the undermining of the efficiency of the entire assessment process. In the early years the secretaries of state complained that assessment districts were en-

¹ *Idem*.

² Annual Report of the Secretary of State, Madison, 1854, p. 43.

³ J. D. Barnett, "State Administration of Taxation in Wisconsin," *Transactions of the Wisconsin Academy of Sciences, Arts, and Letters*, Vol. 15, Part I, Madison, 1905, p. 168.

⁴ Annual Report of the Secretary of State, Madison, 1869, pp. 22-24.

⁵ *Ibid.*, 1852, pp. 16-17.

¹⁰ Laws of Wisconsin, 1873, Chap. 210.

¹ Laws of Wisconsin Territory, 1837-38, No. 93.

² Laws of Wisconsin, 1852, Chap. 498.

³ R. V. Phelan, *Financial History of Wisconsin*, University of Wisconsin Bulletin, Economic and Political Science Series, 193, Madison, 1908, p. 321.

⁴ *Idem*.

gaging in competitive undervaluation. In vain they sought to assure the assessors that compliance with the law would not be prejudicial to the interests of their districts. Assessors did not trust the secretaries—probably with good reason. To make their statements more convincing, the state authorities called their apportionment an “assessment” rather than an equalization.¹¹ However, this seems to have had no revolutionary consequences. It was said that the board of 1878 made “the first endeavor honestly to live up to the law and equalize in fact as well as in name.”¹²

In 1858 the *ex officio* board was abolished, partly because it was thought to be “anti-republican.”¹³ In its place a new board was created, consisting of the secretary of state and all members of the state senate. As one would expect, results were far from encouraging. To the sins of the old board was now added that of log-rolling. Not only were the local assessors out to save their own districts from a portion of the centrally levied taxes, but also the senators sitting on the State Board were there to speak kindly of their constituents. In 1873 the *ex officio* type of board was restored.¹⁴

Perhaps the greatest step forward in the development of a defensible state assessment was taken in 1901. In that year the state tax commission was given general supervision of the system of taxation in the state, general supervision over assessors and local boards of review, as well as authority to require information relating to assessments of individuals and corporations. The office of county super-

visor of assessments was created to assist local assessors and to aid the tax commission in securing data for the state assessment. And finally, the tax commission was made the state board of assessment.

Almost immediately the tax commission was faced with the need for a vigorous equalization policy. For years it had been known that property throughout the state was underassessed. The railroads, resisting *ad valorem* assessment, presented this fact as a principal argument against a new system of public utility taxation. The tax commission urged the assessors to obey the law which required full assessment, assuring them that this would be the best policy, that now at long last they could feel certain that a high local assessment would not mean a high central assessment for their districts. It remained to be seen whether the commission would have the courage to practice its own preaching. Some courage was required, for the state had a fixed school tax rate based on the central assessment, and to increase the taxable valuation of the state would mean an equivalent increase in the amount of the state school tax levy. While this could be remedied by legislation, it would have an immediate, disturbing political effect. It is recorded that in this situation two of the members of the tax commission, against the advice of the third and of the governor, decided to stand by the law. As a result, the state assessment in 1901 was raised from \$630,000,000 to \$1,436,284,000, certainly a bold and courageous act.¹⁵ One of the commissioners who supported the increase later observed that his stand had been vindicated, particularly because of the strength it gave to the state in the

¹¹ *Op. cit.*, pp. 167-168.

¹² *Wisconsin State Journal*, December 10, 1878; quoted by J. D. Barnett, “State Administration of Taxation,” p. 168.

¹³ *Ibid.*, p. 166.

¹⁴ R. V. Phelan, *Financial History of Wisconsin*, p. 334.

¹⁵ N. P. Haugen, *Pioneer and Political Reminiscences*, State Historical Society of Wisconsin, Madison, 1930, pp. 130-132.

inauguration of the ad valorem tax on railroads.¹⁶

The early 1900's saw the introduction and rapid perfection of the "real-estate-sales" method of equalization. Information as to sales had been reported since 1873.¹⁷ The information required included a description of parcels of real estate transferred, the consideration or sales price involved in the transfer, and the latest assessment for such parcels. Since the statutory standard of valuation was market value—"what could ordinarily be obtained at a free private sale"—these data provided an excellent basis from which to calculate the degree of undervaluation in each district and, from this and the assessment figure, the proper value for the district. (The sales price of the sold properties is to the assessed value of these items as the true value of the district is to its assessed value.) These data cast no light on the amount of property omitted from the assessment rolls, such as money and credits, but they did provide a significant basis for the determination of true taxation district values.

The real estate sales method of equalization developed by the commission was explained and defended by Professor Adams in 1908.¹⁸ He stated that the system had undergone "the closest scrutiny and revision" in recent years, and declared that he found himself "more and more convinced of its substantial accuracy."¹⁹ He referred to the use of a five-year average of sales to reduce erratic consequences due to an insufficient sample of sales; also,

to the use of refinement through fielding the sales—that is, investigating them so that those made under circumstances not typical of the market (such as transactions among relatives) could be discarded. However, investigation had established, so he said, that "with practically no care or precaution at all, the results in a large majority of instances will be surprisingly near the truth."²⁰

At first there were many objections to the use of sales as an index of taxable values. The supervisors offered frequent objection. They stated that sales in many districts were too few to provide an adequate sample. Moreover, it was said that sales, while representative of particular classes of property, might not disclose the assessor's bias toward other classes. Since fielding had become highly developed and the supervisor was expected to use his judgment as to whether to include or exclude a sale, it was claimed that the objectivity of the sales method had been over-rated.²¹

As time went on, however, confidence in the use of the sales method for equalization purposes became quite general in Wisconsin, and developed into something like a dogma. The commission, while claiming no infallibility for the method and admitting its inapplicability in special circumstances, steadily maintained that the sales method afforded in most instances a more accurate standard than any other suggested method. This procedure, it said, had the advantage of uniformity, objectivity and accuracy. It could and did command the greatest respect from the public.²²

¹⁶ *Idem.*

¹⁷ This far-sighted legislation, considerably ahead of its era, was sponsored by F. W. von Cotzhausen of Milwaukee, whose name is often associated with early attempts to improve the Wisconsin tax system.

¹⁸ T. S. Adams, "Valuation of Real Estate by the Wisconsin Tax Commission," *Proceedings of the Minnesota Academy of Social Sciences*, 1907, pp. 79-104.

¹⁹ *Ibid.*, pp. 81-83.

²⁰ *Ibid.*, p. 83.

²¹ J. Roy Blough, "Recent Developments in Methods of Real Estate Tax Equalization in Wisconsin," *Journal of Land & Public Utility Economics*, May, 1934, pp. 139-141.

²² See Wisconsin Tax Commission, *Report*, 1914, pp. 39-41; *ibid.*, 1920, pp. 12-13.

During the twenties, as a result of changed economic conditions, the sales method became the subject of renewed attack. Agricultural property, after 1920, encountered a falling and limited market, while urban values, after a sharp decline, recovered rapidly and rose to new heights. Those exchanges of rural property which did occur were heavily weighted with liquidation sales; in some districts a year or more might pass without a single sale which could be called representative. Rural property was becoming more differentiated, particularly in districts which developed a resort business. This made it difficult to get a representative sample with which to check assessments. In the case of urban sales, the consideration was often confused by purchases of land on contract. At the same time, the upward trend of property taxes increased the importance of precision in equalization.

Judge Charles D. Rosa, who came to the commission in 1921, took the lead in calling attention to these conditions. A close student of the property tax, he made a thorough analysis of the sales method and came to a conclusion very different from that arrived at by the pre-war tax commissions. In his address to the supervisors in 1925,²³ Judge Rosa cited instances to show that the use of a single year's sales values would and did result in violent fluctuations in district totals from year to year. He suggested that *averages* of untrustworthy figures were likewise untrustworthy. He stressed the fact that values arrived at by the sales method were frequently contradicted by those arrived at by reassessment and other methods. In

some cases the addition or subtraction of one sale would greatly affect the results. The validity of a five-year average broke down when rural and urban values started to move in opposite directions, discriminating heavily against rural property. The law called for assessment at what property would "ordinarily" sell for; thus, no particular sale could be accepted as a conclusive index of values. But "... it proved almost as difficult to break down the general faith in the sales method as it had been earlier to build up this faith."²⁴

So much for the development of state equalization down to what may be called the current period. A word should be added regarding the parallel evolution of county equalization.

Since statehood, there has been equalization on the county as well as on the state level. Since 1865, except for minor changes, the county board of supervisors has been responsible for the county assessment of taxation districts, subject only since 1880 to review by the state.²⁵

²⁴ J. R. Blough, "Recent Developments in Methods of Real Estate Tax Equalization in Wisconsin," *Journal of Land & Public Utility Economics*, May, 1934, p. 143.

²⁵ Experimentation with county equalization machinery followed somewhat the same lines as that at the state level, except that the counties mixed in the review function to some extent. From 1849 to 1858 local assessors were required to send their assessment rolls to the county board of supervisors for equalization (Wisconsin Revised Statutes, 1849, Chap. 15, Sec. 34.37). In 1858 the duty of equalizing assessments was transferred from the county board of supervisors to the county board of equalization, composed of one assessor from each local unit. This board was to equalize the valuations of *real* property only (Laws of Wisconsin, 1858, Chap. 115). In 1858 the county board of supervisors was given the duty of equalizing the value of *real* property and was authorized to increase or lower the valuation of any tract of land but not to reduce the aggregate valuation of the real property in the county (*Ibid.*, 1859, Chap. 167). At the same time a separate county board of equalization was created (composed of county clerk, county treasurer, county judge, and register of deeds) to equalize the assess-

²³ Charles D. Rosa, *The Wisconsin Real Estate Sales Method of Equalization*, paper read at the Annual Meeting of the Assessors of Income, Madison, 1925. See also H. R. Briggs, *The Determination of the True Value of Real Estate for the Purpose of Equalization*, paper read at the Annual Conference of Assessors of Income and Auditors, 1923.

County experience with equalization prior to 1900 was similar to that of state equalization. The tax commission of 1898 reported that county assessment had become a disgraceful struggle among the members of the county board, each striving to help his own district at the expense of the others. Members of the county board from the towns were often arrayed against those from the city. Whichever side was in the minority proceeded to create more towns or wards in an attempt to obtain majority control of the county board. The commission quoted the following from the *Milwaukee Sentinel* of November 19, 1898:²⁶

"The Brown County Board of Supervisors has increased the city of Green Bay's property valuation \$412,000 over the report made by the Committee on Equalization. This is an increase of 20 per cent of the valuation as reported. . . . The resolution was presented by Supervisor Boex of De Pere and created a tumult upon the floor of the meeting. It was strongly opposed by the urban members of the board, while the rural members heartily supported it. The resolution was finally passed by a vote of 13 to 18. "The outcome of this action will probably be the increase of the wards in the city to double the number which it now

has. An ordinance will be presented to the council authorizing the increase of the wards so as to increase the number of city members on the County Board as a means of future safety against increases in the valuation of city property of that body."

Following the creation of the tax commission and the inauguration of supervisors of assessment in 1901, the problems of county assessment have tended to disappear. In 1914 the commission expressed its view of the subject as follows: "When county boards disregard the report of the assessor of incomes they proceed without chart or compass, and the result is often grotesque."²⁷ Over a period of years the difference between county and state assessments has largely vanished.

Reasons for Central Assessment

Before further attention is given to central assessment techniques, some further elaboration of the purposes of central assessment may be timely.

The principal objective of central assessment in Wisconsin is, and always has been, to smooth out inequalities in the general property tax burden growing out of the use (knowingly or unknowingly) of different assessment standards in the 1,793 primary assessment districts of the state. In recent years, however, other interests have added much to the desirability of an effective central assessment despite the near-abandonment of general property taxes for state governmental purposes. Without ranking for relative importance, the various reasons for central assessment are reviewed here.

(1) *Tax Burden of Centrally Levied Taxes Equalized.* The first purpose of central assessment to be considered is that of equalizing the burden of centrally levied taxes. Even though state general

ments of *personal* property. In 1860 this second board of equalization was abolished and the county board of supervisors, acting as a board of equalization, was required to equalize the assessments of *local units* rather than the assessed values of individual parcels of property (*Ibid.*, 1860, Chap. 295). Legislation in 1861 altered the composition of the county board of equalization so that it consisted of the chairman of town boards of supervisors and one alderman from each city ward and incorporated village (*Ibid.*, 1861, Chap. 129). Four years later the equalization of assessments of both real and personal property was again made the duty of the county board of supervisors (*Ibid.*, 1865, Chap. 538).

²⁶ Wisconsin State Tax Commission, *Report*, 1898, p. 79.

²⁷ Wisconsin Tax Commission, *Report*, 1914, p. 41.

property taxes have largely been abandoned, the state still has a great interest in the equitable distribution of taxes among other units. In 1938 the tax commission reported that more than half of county taxes result from mandatory expenditures in connection with highways, corrections, and education.²⁸ This means that counties must perform certain functions and pay for certain costs over which they exercise little, if any, control. Thus, the state has a direct concern in the equitable spread of county taxes among taxation districts in each county. Of course, the state has an indirect concern in the proper distribution of all taxes.

(2) *Assessments by Classes of Property Equalized.* Since assessors often use different assessment standards for different classes of property, some method of equalizing the assessments within the assessment district, as well as with similar classes of property in other districts, is necessary if the legal standard is to be followed. In some states this is accomplished (at least in contemplation of law) by permitting the equalization agencies to make mass changes by classes of property within assessment districts. In Wisconsin this objective is not directly obtainable, although the system of assessment supervision has helped to accomplish the same end; that is, neither the county nor the state assessment can change individual assessments by classes of property. However, the annual statistical reports, prepared for each county by the supervisors of assessments and submitted to each county board for adoption as the county as well as the state assessment, show both the full and the assessed valuation of each class of property in each taxation district. In other words, the supervisor arrives at his recommended full value of a taxation

district by classes of property. Publication of this information has helped to minimize inequalities among the assessments of different classes of property. Not only are the assessors made aware of the classes of property that are being under-assessed, but the governing boards and the people are also apprised of the facts.²⁹

Equalization by classes of property is particularly important in the case of industrial property, where the local pressure for a favored rating is likely to be especially strong.

(3) *Tax Rate Limitation Made Effective.* Tax rate limitations in Wisconsin are based partly on the value determined by the Department of Taxation and this adds another reason for effective equalization. Generally, county tax rate limitations are in terms of full and true value of the county as shown by the county assessment.

(4) *Local Debt Limitations Made Effective.* Limitation on local governmental indebtedness is also based on the state assessment. This avoids the possibility of extending indebtedness by the manipulation of local assessments.

(5) *Basis for Distribution of School Aids.* The state assessment also plays an important role in the Wisconsin system

²⁸ However, care is sometimes taken in changing the county assessment because of the undervaluation of classes of property to permit local assessors to put their houses in order. To illustrate, the county board of one county was dissatisfied with assessments in one town because of the undervaluation of much lake property. When reappraised, the value of the town showed a total increase of 46 per cent. To have used these values as a method of apportioning the state and county tax would have greatly increased the taxes apportioned to the town. However, because assessments are not changed by the equalization process, this increased tax burden would have fallen mainly on other property in the town, largely farm property. Therefore, the county board was persuaded not to change values until the local assessor had had a chance to change his assessments the following year.

²⁹ Wisconsin Tax Commission, *Report*, 1938, p. 18.

of state aids to local governments. State aids, involving distribution to local governments on the basis of the value of property, are distributed according to the state assessment. Most important is the common school equalization fund, which is distributed according to a formula involving full valuation of school districts as calculated by the department of taxation.³⁰ These aids run to much larger sums than the state's levy on general property.

(6) *Division of Cost of Joint Projects.* The state assessment provides an equitable means of dividing the cost of joint projects among different local governments. Counties must aid towns in constructing and repairing certain bridges, the amount of the aid being governed according to the equalized value of the town. Likewise, cost of construction of certain bridges extending into several local governmental units is apportioned according to the equalized value of the units.

(7) *Defeat of Competitive Undervaluation.* If an assessor knows that a good job of assessing property in his taxation district will not penalize his own neighbors, he is much more likely to follow the statutory standard of full assessment. The importance of this in sustaining the morale of assessors is crucial.

(8) *Minimize Rural-Urban Conflict.* Non-political state and county assessments have practically eliminated the long-standing quarrels, between towns on the one hand and cities and villages on the other, as to which should bear the larger part of the state and county tax burden. Though there are still instances of town-versus-city fights in Wisconsin, they have been largely eliminated from the property tax field. Prior to 1900 the rural-urban conflict was vicious.

(9) *Equitable Rate for the Taxation of*

Railroads and Utilities. The state assessment in Wisconsin is an important part of the process of obtaining the average state rate for taxation of railroads and many inter-district utilities.³¹ This rate is obtained by dividing the total property tax of the state (including taxes levied by all subdivisions) by the equalized value of all taxable property.³² The average state tax rate is then applied to all property assessed by the department of taxation. Use of the average state tax rate on state assessed property, calculated according to the full value of property, accomplishes the objective of equalizing the burden of taxation between property assessed by the department of taxation and that valued by local assessors. If assessed values were used in calculating the average state rate, the effective tax rate on utility property would be somewhat higher than that on property assessed locally.

(10) *Limitation on Income Taxes Distributed to Local Units.* The law provides that where income taxes apportioned to local units exceed 1 per cent of the equalized value of all property in the local unit, the excess is paid to the county and distributed to the several towns, villages, and cities according to the school population therein.³³

The above list of uses to which the central assessment is applied should be sufficient to convince the most skeptical that state governments, and even the federal government, should be vitally interested in effective state equalization.

Methods of Equalization

Attention may now be turned to the techniques of equalization currently employed in Wisconsin. It is helpful to re-

³⁰ *Ibid.*, 76.01.

³¹ *Ibid.*, 76.12.

³² *Ibid.*, 71.19 (1).

³³ Wisconsin Statutes, 1941, 40.87 (2).

call that there are two main methods of equalization used in the United States. The essential difference between them is that under the first method, large numbers of individual assessments must be corrected on the assessment rolls to make possible a uniform rate of centrally-levied taxes, and under the second, the central unit assigns such local unit the amount it must raise, with instructions to set the tax rate accordingly.

The second method of equalization, such as is used in Wisconsin and Michigan, involves no *en masse* changes in the valuation of property for tax purposes, but somewhat the same purpose is accomplished by varying the tax rate of centrally-levied taxes according to the extent to which assessments in the taxation district approximate statutory standards. Although this method is not so widely used as the first described above, it is somewhat more simple in actual practice, though more difficult to describe and to fully understand.

For instance, in Minnesota all changes in local assessment ordered by the local boards of review, the county and state board of equalization each sitting as a board of review or equalization, must be made in the individual assessments as returned by the township, village or city assessors—the result being, at least in law, the final equalized and true value of the property assessed. With all this juggling going on with individual assessments, it is obvious that the local assessor would scarcely be able to recognize his own work.

In Wisconsin, however, normally the only changes made in the local assessment after completion by the local assessor are those made by the town, village, and city boards of review, while the county and state assessment (equalization) involves no change in individual assessments as re-

turned by the local assessor and approved by the local board of review. Instead, the full value of property in a taxation district is arrived at independently by the supervisor of assessments, working in conjunction with the state department of taxation. Then the amounts of taxes actually levied are apportioned to the taxation districts for collection on the basis of "true" values calculated by the supervisor and approved by the department of taxation. Local taxation districts can then set their tax rates at such a level as will yield the required amount of centrally levied taxes on the basis of the local assessment. Thus, in Langlade County in 1938 the county tax rate in Evergreen Town was 28 mills on the basis of a ratio of assessment of 41 per cent, while in Norwood Town, where the ratio of assessment was reported at 82 per cent, the county tax rate was only 14 mills.

County boards are one of two classes of central assessment agencies in Wisconsin. These boards are composed of the chairman of each town and an elected supervisor from each village and city ward in the county. They are required to make the "assessment of taxation districts" at their annual meeting in November. Their task involves the determination of the full value of property in all taxation districts of the county.

As a general rule, the basic work of the county board is performed by the equalization committee of the board and by the supervisor of assessments. For example, supervisors of assessments are required by law to meet with the equalization committee prior to September 1. Supervisors of assessment are also required by law to make reports to county boards each year, showing in detail the work of local assessors in their several districts, the failure, if any, of such assessors to comply with the law, the relative, assessed—and

full—value of property in each taxation district, and all such information and statistics as may be obtained which will be of assistance to the county board in determining the relative value of all taxable property in each taxation district in the county.

The second central assessment agency is the department of taxation (formerly the tax commission). Their equalization is known as the county assessment, and is based almost exclusively on the recommended values submitted by the supervisors of assessments. Regulations of the department of taxation require the supervisor of assessments to submit his recommended values to the department for approval by not later than September 1. In turn, the department is required to complete the county assessment by September 15th.

The central assessment of property by the department of taxation is completed almost two months before the county board makes its assessment of taxation districts in the county. In many states the completion of the state assessment or the state equalization follows, not precedes, the county equalization. The reason for the difference is that in Wisconsin the apportionment of centrally levied taxes begins on the state level and proceeds to the county, thence to the taxation districts, and finally to the individual property owners. This difference in procedure has given the department of taxation an opportunity to make its recommended values before the county board has had a chance to make up its mind on the value of property. Since the county board is not committed, it is not necessary to make an about-face when the recommendations of the department of taxation are received.

Taxation district values recommended to the county board by the district supervisor of assessments are the same as those

approved by the department of taxation in making the county and state assessments. In recent years the widespread acceptance of the recommendations of the supervisor of assessments has meant that the taxation district assessment and the state assessment are identical. In 1938 there were only two counties that did not accept the supervisors' recommended values. In one case, the board cut all recommended values a flat 10 per cent as an indirect means of holding down county tax levies. The other county cut all rural lands in the county while maintaining the recommended values on improvements and personal property. Except for a slight shift of the burden from land to improvements and from rural to urban areas, little was accomplished by the change.³⁴

Turning now to the techniques involved in finding assessment levels, the supervisors of assessment and the department of taxation have used three principal sources of information in making the central assessment of real estate—sales data, appraisals, and "mass assessments." Real estate values, prior to 1921, were obtained mainly from the ratio method of handling sales of real estate. The subsequent breakdown of this method led to the development of additional tools. Nevertheless, the voluntary sale of real estate still remains the sign-post by which all central assessment procedure is guided. A variety of information sources are used for the central assessment of personal property.

³⁴ Aldro Jenks, "How Wisconsin's Plan of Supervision Works in Practice," *Proceedings of the Sixth National Conference in Assessment Administration*, National Association of Assessing Officers, Chicago, 1940, pp. 23-34. If taxation districts are dissatisfied with the recommendations of the county board, an appeal may be made to the department of taxation requesting a reequalization. This involves a revaluation of the taxation districts by the department (Wisconsin Statutes, 1941, 70.64).

Limitations of Sales Data

Over a long period of years the experience of the department of taxation and the supervisors of assessments indicated that the use of sales data exclusively for building taxation district values was subject to important limitations.

Number of Sales. In only a few taxation districts have the number of sales occurring in any given year been an adequate sample of property values. In 1930 the tax commission emphasized that all too frequently sales were not available in a sufficiently large sample to provide reliable indices for market value, especially in rural districts. The commission reported that in dozens of towns there was not a single usable sale during the year, and in a majority of towns there were very few. The report stated that reliable figures could seldom be obtained where total value of sales constituted less than 10 per cent of the taxable property in a district. The commission also emphasized that even if there were a sufficient number of sales, the fact that certain classes of property tended to sell more frequently than others seriously limited the usefulness of sales data as a measure of all property values.⁸⁵

A sample study of the usable sales of residential and business property in the city of Janesville for the period 1933-1939 illustrates the non-representative character of sales data.⁸⁶ In 1939 there were only three sales of business property, all of which were seriously weak on various points. In 1934 there were only 18 usable sales of residential property, as compared with 80 in 1937. In 1933 there was only one usable sale of residential property valued in excess of \$2,500. In contrast,

there were many properties listed on the tax rolls and valued in excess of \$10,000.

During the earlier depression years, the low or medium valued properties were the only ones for which there was a ready market. Because of the common tendency to assess lower valued properties at a higher ratio of full value than more expensive properties, a sales ratio secured from sales of such low-valued properties, if applied to the entire assessment, would result in a higher index of property values than actually existed.

Fielding Sales. Information from buyers and sellers alone is not sufficient to indicate whether a sale represents general market conditions of property. Therefore, it is necessary to inspect (to "field") all properties that are sold. For example, two farms in the town of Pleasant Prairie were sold, one of 94 acres to a "sick" Chicago mechanic for \$21,000, and the other of 80 acres to a "Waukegan man for \$30,000 cash." The first, according to the supervisor of assessments, was worth the price paid; but the second was not. Only by inspecting these two properties could these facts have been determined. Actually, the second sale was "erratic" and the price paid was not justified by the circumstances. In neither case was the purchaser familiar with the values of other farms in the locality. The tax commission concluded that it was unreasonable to suppose that the action of a "sick" mechanic from Chicago or that of a Waukegan "bootlegger," neither of whom had sufficient knowledge of farm prices in the locality, would be a better basis for equalization than inspection made by intelligent persons familiar with market values of farms as well as other conditions affecting farm values in that neighborhood.⁸⁷

⁸⁵ Wisconsin Tax Commission, *Report*, 1930, p. 14.

⁸⁶ Usable sales are those sales which, after thorough investigation, are considered representative of value of property in the district.

⁸⁷ Wisconsin Tax Commission, *Manual for Supervisors of Assessment*, 1931, p. 74.

Erratic Character of Sales. In 1930 a special study was made by the Wisconsin Tax Commission in each of the 1,789 assessment districts in the state. Districts were classed as either normal or "erratic." Normal districts were those in which values, as reflected in sales data, changed gradually from 1920 to 1924—the period covered by the study. Erratic districts were those in which the estimated full values on the basis of usable sales moved in an improbable way. If dips or rises in district values were over 10 per cent from year to year, the district was placed in the erratic class. The results of the study showed that 69.5 per cent of the towns, 66.5 per cent of the villages, and 35.8 per cent of the cities—or 66.1 per cent of all assessment districts in the state—were in the erratic class.⁸⁸

The commission further subdivided the erratic districts into those which were "erratic" and those which were "highly erratic." The latter were districts with changes so violent as to make it unbelievable that real estate values could, by any stretch of the imagination, have varied so widely. Changes of 25 per cent or more in a single year were relatively common. Approximately 25 per cent of the towns, 20 per cent of the villages and 1 per cent of the cities were classed as highly erratic.⁸⁹

⁸⁸ Wisconsin Tax Commission, *Report*, 1930, p. 16.

⁸⁹ Some of the main reasons for the erratic character of sales data were listed as follows: "Too narrow a base brought about by having too few sales; slovenly investigation of sales; investigating sales with little or no regard for the rule of the statute; the limitation placed upon investigation of sales by lack of time and opportunity; lack of classification of property of a taxation district, with the result that a ratio obtained from the sales of one class of property is applied to an entirely different class of property which may be assessed, and usually is assessed, at a different ratio, and last, but most controlling, an erratic assessment." (Wisconsin Tax Commission, *Manual for Supervisors of Assessment*, 1931, p. 74.)

The tax commission stated that fully 50 per cent of the troubles encountered in the use of the ratio method of handling sales arose through three erroneous assumptions, which they listed as follows:⁴⁰

(1) It was assumed that the local assessment was a constant, when, in fact, it is always a variable and, in entirely too many taxation districts, so highly variable and erratic that it is impossible to apply any ratio, obtained from specific sales, to the total assessment of the district without obtaining values so erratic as to be worthless. (2) Values derived from sales contain no element of human judgment but are derived by a more or less mechanical process and are automatically the same whether the work is done by one person or another—even persons whose judgment and standards of values are far apart. (3) Good values may be obtained by averaging bad values.

Rejection of Sales. The field study conducted by the authors in 1939 disclosed that a large proportion of the transfers of property reported to the department of taxation were rejected because no consideration was involved, or the reported consideration was not a reflection of market value. Some of these reasons were clearly revealed in the tabulation of the causes for rejection of 1,455 sales in the City of Janesville for the period 1933 to 1937, inclusive. Approximately one-fifth of the sales (19.2 per cent) were rejected because land contracts were involved;⁴¹ one-tenth (9.5 per cent) were eliminated because of transactions between relatives; and more than one-fourth were excluded because of "title difficulties." The re-

⁴⁰ *Ibid.*, pp. 75-77.

⁴¹ One may question the necessity of rejecting land contract sales; perhaps some classification of these transactions and some study of their relationship to the more usual type of transfer would make this sizeable volume of exchanges usable.

mainder were weeded out for a variety of reasons, of which forced transfers was the most common.⁴²

Appraisals as a Supplement to Sales Data

Widespread recognition of the limitations of sales data as the sole method of arriving at full value of taxation districts led to the use of appraisals. The fielding of sales, previously discussed, involved some appraising. Each reported sale of property was appraised by the supervisor for two purposes: first, to determine whether the sale reasonably represented the value of the property, and second, to "school" the supervisor's judgment. As one supervisor stated, "Our judgment of values must be a carry-over from our past experience, modified or confirmed by such sales as exist today."⁴³ Thus, appraisals were only one step removed from sales.

A common procedure followed by a number of supervisors in making supplemental appraisals in a taxation district was to start off first by viewing properties which had been transferred since the last time the district was worked. These properties were viewed (a) to discover what sales were usable, (b) to determine what types of property were being sold, and (c) to prime the supervisor's judgment on values of property in the particular taxation district. Most of the super-

visors invited assessors to accompany them while fielding sales so that both could benefit from the experience, and the assessor could be given the advantage of "laboratory work." After the fielding of sales had been completed, the supervisors then made appraisals of all classes of property in the taxation district. Some appraised approximately 25 per cent of the district—never less than 10 per cent—and attempted to make the sample representative of property in the district. The assessor was also invited to accompany the supervisor as the latter made these appraisals.

Appraisals completed, the supervisor of assessments then compared assessments of appraised properties with his appraisals in order to arrive at an estimate of the ratio of assessment for each class of property in the taxation district. Provided the assessor had accurately classified the taxable property, all that remained to be done was for the supervisor to apply his assessment ratios to each class of property and total all classes to find the full value of property in the taxation district.

In many cases it was necessary to develop a third method of arriving at taxation district values. This method was termed "mass assessment"; it involved rapid and complete appraisal of all land and improvements in the taxation district. It was especially useful where assessors' classifications were known to be unreliable. Obviously, application of an assessment ratio to classes of property that were known to be incorrectly classified would not yield a correct assessment. In many cases the classification was so faulty that neither the sales method nor the appraisal method could produce satisfactory results.

In addition to avoiding the problem of improper classification by local assessors, it was claimed for mass assessment that

⁴² The Janesville information was tabulated from sales cards on file in the Supervisor of Assessment's Office, Madison, November, 1939. For a further account of some of the difficulties encountered by a supervisor in using sales data, see Aldro Jenks, *Methods Used in Arriving at Taxation-District Values in 1934*, Wisconsin Tax Commission, 1934.

⁴³ Statement made to the authors. Most of the supervisors, prior to the consolidation of districts and the reduction in personnel in 1940, tried to cover thoroughly each county in their districts once every three or four years.

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it cultivated a personal acquaintance with the property in question and that it was quite easily understood by county boards. Supporting the latter advantage, it was said that county board members found ratios difficult to understand and followed the supervisor better when he spoke in terms of acres and dollar values per acre.

Ratio methods of using appraisals or sales information were usually found to give most satisfactory results in cities and villages, where classification was better than in towns. Urban classification, it was reported, was much simpler because the dividing line between classes of property was much more distinct. However, some supervisors made mass assessments of urban as well as rural property. No account can be given here of all the detail involved in mass assessment as the different supervisors used it.⁴⁴ Its use in towns was facilitated by advance office study of soil and road maps of the district. Unit values of different classes of property, based largely on an analysis of sales over a past period, could also be determined at least tentatively in the office. Field work consisted of actual examination and classification of the land. Improvements might be valued according to the size of the farm. Follow-up work involved applying unit values to total units in the classifications and summing the resulting figures. It was reported that a mass assessment for a "normal" town took from 3 to 5 days, depending on the topography and other factors. It was claimed that mass assessments of the same town, two years apart, did not vary 5 per cent.

This technique was not used by all supervisors, and there seems to have been a rather heated debate going on among

them as to the value of the process. Some reported that it was applicable only to towns that were fairly uniform, while others claimed that it was of wide applicability.

It is fair to say, however, that this process was probably neither as good as some claimed nor as bad as believed by others. Land classification for tax purposes can be a distinct aid if it is accurate. In some cases supervisors have been forced to make a "mass estimate," which is merely a hurried survey of the town. Sometimes one or two towns can be covered in one day. Those supervisors who are most critical of the process probably object most to the use of unit values and the methods used to derive them; hence, their statement that it is applicable only to uniform towns. This objection can be overcome by making the mass assessment more detailed. However, the more detailed it becomes, the more like appraisal it appears to be. In fact, there is a constant shading from "mass estimate" through "mass assessment" to appraisals. Undoubtedly, the most precision could be had from appraisals of entire towns. Considering the permanency of much appraisal information, this might not be a bad investment. But practically, appraisals have been less comprehensive. The three methods differ in the time element, ground covered, and extent of detail. Appraisals cover less ground but are much more detailed, and their use is predicated on the assumption that the assessor's classification is correct. Both "mass estimate" and "mass assessment" cover all the area, but the time taken for the "mass assessment" is somewhat longer.

Central Assessment of Personal Property

Personal property taxation in Wisconsin amounts to about one-tenth of the to-

⁴⁴The best source that was found concerning the subject is an unpublished manuscript of Deputy Supervisor W. F. Miller and the remarks of Supervisor Galbraith at the supervisors' meeting in Madison, 1935.

tal property taxes in the state. Of this amount, approximately one-third is levied on livestock, one-third on stocks of retail goods, and one-third on manufacturers' inventories and industrial machinery. For information concerning merchants' and manufacturers' personal property, supervisors relied heavily upon data obtained from state income tax returns. Unit values of livestock were obtained from market and auction sales; numbers and classification of livestock were accepted as rendered by the assessor unless there were reasons for believing that there were important omissions, in which case allowances were made accordingly.

Relation of Supervisors to County Boards

In general, supervisors of assessment have pointed with pride to the cooperation they have received from county boards. But the almost statewide approval of the recommended values of the supervisor of assessments should not be taken as an indication that county boards have lost interest in the subject. Quite the contrary: the recommendations of the supervisor are usually very carefully checked. Only the close association and willing cooperation of the supervisor has made such state-wide approval possible.

Summary and Conclusion

Contrary to the opinion of many citizens, the need for a good state equalization has not disappeared with the elimination of state property tax levies. Because of the growing interdependence of federal, state, and local tax systems, as exemplified by shared taxes and grants-in-aid, a good equalization may become even more necessary in the future.

Over a period of 40 years, Wisconsin

developed a vigorous and scientific system of equalizing centrally-levied taxes. Sales of property, when properly verified, constituted the mainspring in the process of determining assessment levels. But in recent years the refinement of equalization techniques, the extension (in effect) of state equalization to the primary assessment districts, and the paucity of evidence indicating "full value" necessitated the development of supplemental tools. Appraisals and "mass assessment" were the means by which these refinements were accomplished.

Historically, the need for both state and county equalization agencies was made necessary by the existence of the large number of primary assessment districts. Although these two equalization agencies still exist, the vigorous policy of scientific equalization (followed by the tax commission and the extension of their work to towns, villages, and cities) has resulted in one equalization in practicality. County boards in recent years have almost universally adopted the recommendations of the department of taxation. While some would suggest that now is the time to require one equalization in law as well as in fact, it is believed that the ever-present potentiality of a county equalization has placed a very wholesome check on the department of taxation. The department has been forced to earn its cooperation, not to assert its prerogatives.

The task of making the central assessment has rested on the shoulders of the supervisor of assessments. In practice, he has combined his equalization function with his duties of supervising the local assessment. By combining his two tasks, he attempts to secure more equitable assessments in the first place and thus to minimize the necessity of equalization.

A very skeptical view of the usefulness

of equalization has been presented by one authority as follows:⁴⁵

"State equalization has in some cases reached a high degree of technical competence, but its potentialities for substantial reform are very limited. For by its very nature it deals with averages, and touches only lightly the heart of the problem, namely individual inequality. As a supplement to supervision, the scope of its operation, if supervision were really adequate, would be to decline as supervision increased in vigor. Actually, in most cases of vigorous state supervision, energetic state equalization is also undertaken and it has been found that vigorous supervision still leaves much equalizing to do. The more there is for equalization to accomplish, the more applicable become the objects to and limitations of equalization as a major method of reform, namely its remedial rather than its preventive character, and its emphasis on the state levy and averages whereas the most important type of inequality is that between individual property owners for purposes of local levies.

... Whatever good the whole system of equalization may do toward the betterment of assessments is more than counterbalanced by the harm it does in diverting attention from the far more effective methods of reform which may be undertaken. From this wider viewpoint, are not the establishment and improvement of equalization actually obstacles rather than aids to the development of equitable assessment of real estate?"

While there is some truth in the above statement, it seems to us that it is not borne out in the main, by the Wisconsin

experience. If either supervision *or* equalization needed to be emphasized—at the expense of the other—the former would be the proper choice to be favored. But the two functions can be developed perfectly together and the one complements and supports the other. Both of them are preventive as well as remedial and both do tend to reduce individual as well as group inequalities. Able personnel and refined techniques are required in both cases. The sales method alone is full of pitfalls but it can be and has been successfully supplemented. We do not claim that the Wisconsin equalization system is free from imperfections, but we do say that it is far better than what it replaced and that at its best it has done its job reasonably well. There is no evidence that we have found to support the view that good equalization procedure blocks the road to more fundamental progress. Of course, perfect individual assessment by a central agency would make equalization unnecessary, at least in its present form; but this is merely the wishful contemplation of inaccessible alternatives. The academician is very prone to conceive centralization as the answer to all our problems, but that it would prove to be a panacea is quite unlikely. In a world where practical compromises are necessary, property tax equalization can play a very useful role. It and supervision are necessary and complementary factors in a system of state control, and if they are both well done, they can yield a high-quality product of property tax administration.

⁴⁵ Joseph D. Silverberg, *Assessment of Real Property in the United States*, Special Report No. 10, New York State Tax Commission, Albany, 1936, pp. 232-233.

Major Aspects of Urbanization in the Philadelphia Metropolitan Area

By LARRY F. DIEHL*

Introduction

URBANIZATION is the process by which competition among uses changes the pattern of occupancy and use of land from rural to urban. The germ of the process is present as soon as concentration of population takes place. The degree to which the countryside is affected depends upon the space and use needs of the increasing population, the size of the community, and the rapidity of its growth. The only evident effect of the process in land surrounding small centers of population may be a change in the type of agriculture from general farming to specialization in poultry, dairy, and market garden farming. In localities adjoining growing boroughs or expanding cities, the process becomes at once more obvious and more complex. As population density increases, it becomes necessary to put more restrictions on individual freedom of action; thus urbanization is a process involving human relationships and group action as well as changes in the use of the land.

Space is the primary need in the growing city. Philadelphia has experienced both vertical and horizontal expansion. Part of the need for space was met by intensification, through use of multi-story buildings and structures crowded together, leaving little land even in residential

sections. The major part of the need for space was met by geographical expansion, first within Philadelphia itself, and then into adjoining counties.

It is with the manner in which urban uses extend into the hinterlands of Philadelphia that this article is concerned. The analysis will be developed through an examination of the promotional features of the process, the roles played in it by transportation and credit, the kinds of land uses, the types of people, and the social and legal controls involved. Included also will be a brief discussion of what may be expected in urbanization after the war. The Bureau of Agricultural Economics initiated a research activity in 1940 designed to appraise the significance of change from rural to urban uses. Completion of the study was postponed by development of the Bureau's Wartime Program. The sample area used in the study is the pie-shaped section of land lying between Lancaster Pike (United States Route 30) and Baltimore Pike (United States Route No. 1) in Philadelphia, Delaware, and the eastern part of Chester Counties, Pennsylvania.

Prior to 1870 the sample area was entirely rural. The urbanized area was located almost entirely within Philadelphia County in that part of the present central city known as West Philadelphia. Growth was largely of the linear type along main roads leading out of the city. Settlement was limited to the industrial centers of Clifton Heights and Media along Balti-

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more Pike, and to Darby and Chester along Chester Pike. In addition to these larger industrial centers, small mill settlements were scattered throughout the area along streams furnishing water power.

During the twenty years from 1870 to 1890, settlement moved out along main turnpikes. Waterpower was used less extensively, giving way to wider use of steam and electricity. Most of the small mills disappeared and industry began to concentrate along the Delaware River between Philadelphia and Chester. Schools and cemeteries began to be located outside the city. Subdivision promoters became prominent, and since 1870 most land has passed through several steps in moving from agriculture to urban use.

The process of urbanization extends outside of the political boundaries of the city proper through three general zones of influence—the urban, the rurban, and the rural. Because of the dynamic characteristics of urbanization, it is impossible to fix zone boundaries for more than a short period of time. Changes are occurring constantly. Only a year ago a part of the urban zone was rurban and some of the rurban was rural. The urban zone embraces densely populated segments of municipalities adjoining the city and is almost indistinguishable from the city to which it is so closely tied, both economically and socially. The rurban zone extends out from the urban zone to the periphery of commercial agriculture. Here are found the transitional uses characteristic of areas lying between strictly urban and rural areas. Beyond this lies the rural zone.

In the Philadelphia area many of the downtown stores have branches located within the urban zone, which includes what are known locally as the "Main Line" and "69th Street" sections of Philadelphia, even though these centers are in

adjoining counties beyond the limits of the city proper. Here most of the ownership has been broken down into lots, and plat maps have been filed for the few remaining vacant holdings of larger size. Much of the undeveloped land is in absentee ownership. The townships maintain large police forces complete with radio-equipped scout cars, fire-fighting equipment, sewers and sewage disposal plants, parks; have playgrounds, well-paved streets, street cleaning and garbage-collection services. Uninterrupted transportation between the center of the city and a large part of this zone is provided by bus, trolley, and subway-elevated electric trains.

In the rurban or transition zone lie acres of idle land—mute evidence of premature and excessive subdivision and of speculation. There are subdivisions in various stages of development—some that died "a-borning," a few just beginning to grow, others in a stage of decadence, and a few that have had steady growth and may be called suburban centers. The latter are developing their own zones of influence along with the older villages also located here. The uses of land in this "twilight" zone form a heterogeneous pattern of golf courses, memorial cemeteries, public and private schools, dog kennels, riding academies, greenhouses, a few isolated commercial farms, and a great many rural residences ranging in size from small homes on 20 x 50 foot lots to large estates covering many acres. Part-time farming is practiced in varying degrees. A large proportion of the land is in absentee ownership and is tax delinquent.

The dividing line between the rurban and rural zones is as obscure as is that between the urban and the rurban zones. In the rural zone, land is used chiefly for commercial agriculture. In contrast to the

other zones, a much smaller proportion of the ownership is absentee and tax delinquency is negligible. The only concentrations of population are in the few villages and boroughs scattered throughout the countryside.

Transportation in Urbanization

Transportation plays a dominant role in urbanization, in both the beginning and continuing phases. A comparison of transportation facilities or of the land occupancy pattern around Philadelphia in the years 1870, 1890, 1910, 1930, and 1940, indicates that urban growth outside the city began with the growth and expansion of villages spotted along railroads connecting with the city. Settlement moved out of the city along these railroads and along nearby main highways toward the villages. People moved most rapidly toward the larger outlying centers. They reached a distance of not more than 10 miles from the center of the city along any railroad and there the movement stopped, to await better transportation facilities and services.

With the introduction of electric trolleys, settlement spread out along roads devoid of already established villages and also became more dense close to Philadelphia. Trolleys appeared when the leap-frog growth along railroads apparently had reached the limit of commuting distance. Trolleys supplied the means of filling in between the previously established railroad station communities. The effect of the automobile became apparent in the early 1920's, with an increase in urban land uses and a definite movement of population to rural areas beyond trolley and railroad margins. Up to this time, urban settlement had been confined to a narrow band along trolley and railroad lines.

Most of the railroad and traction companies acquired large tracts of land adjoining their rights-of-way and were among the first urbanization promoters. For example, until 1873 the Philadelphia, Wilmington and Baltimore Railroad line ran along the river from Philadelphia to Darby, Chester, and on to Wilmington. After 1873 the river line was used solely for freight, and a new passenger line was opened between Darby and Chester by way of a route which was several miles back from the river and close to the Chester Turnpike. The development of a few of Philadelphia's oldest suburbs—Glenolden, Norwood, Prospect Park, Sharon Hill, and Ridley Park—is the result of railroad subdivision promotion. To encourage settlement along and near the railroad, the railroad company organized a subsidiary and also arranged with other real estate and development concerns to issue a free annual passage ticket for each \$5000 of residential construction. As a further inducement, building materials were transported at one-half the usual cost and commuters' tickets were issued at greatly reduced rates. In like manner, the Pennsylvania Railroad contributed to the development of many of the suburbs of the "Main Line" west of Philadelphia along Lancaster Pike.

Traction companies also engaged in land promotion activity. For example, in 1912 a "fast line" was placed in operation between the new 69th Street terminal at the western edge of the city and Media, the county seat of Delaware County. It ran via several booming suburbs and through rural areas then being farmed. In order to protect itself against inflated prices for the right-of-way, and probably with full knowledge of the great demand for suburban homes that was developing, the traction company bought up 7 farms,

comprising 300 acres, through "straw buyers." After providing for the right-of-way, title to the remaining land was transferred by the traction company to a subsidiary real estate company. In 1915 this company began the development of what is now Springfield.

The residential developments encouraged by railroad and traction companies followed the same general pattern. Stops were located at or near the most attractive sites. Usually a development plan was drawn up for these choice sections. Main streets were paved, some sidewalks laid, and a water supply was provided from either a water company or through artesian and pumped wells. Residential lots were at least 50 x 100 feet and certain corner lots were set aside for small business centers. Strategically located lots were withheld along the right-of-way, especially near stations, for various commercial uses. These are used today for automobile parking spaces or are rented to oil companies for automobile service stations. Deed restrictions often prohibited all but single or very attractive semi-detached homes. The subsidiary real estate company sold these lots direct to prospective home owners and often built several attractive homes, selling them on easy terms in order to attract other purchasers. Most of the remaining land was sold in large blocks to other promoters and developers.

The big difference between railroad or traction company subdivision development and the promotion carried on by individuals has been that railroad and traction companies are interested in future revenue as well as in development profits; hence, there was an attempt by the companies to build permanent communities. However, up until 1930 some communities were developed which since then have become less

desirable places in which to live, largely because many of the homes built were semi-detached or row houses. The city caught up with Millbourne, Upper Darby, Lansdowne, Sharon Hill, Glenolden, and Norwood. Living conditions in these suburbs differ little from those in the residential section of the central city. Prospective purchasers of suburban homes must go farther out to find the types of properties they seek. Some of the families who once owned homes in these centers sold their properties and bought homes in Springfield, parts of Drexel Hill, Brookline, Oakmont, Brookthorp, Marple Hills, and Broomall.

Individuals in the Urbanization Process

With the advent of rapid transportation facilities to the city, rural land adjacent to or within a 10-minute walk of the stations took on a new value. A variety of individuals recognized the profits to be gained through satisfying people's desire for home ownership and entered the process to serve various functions. The first in the picture usually were speculators who bought and sold land—not home sites. Primarily, their only function was to remove the land from agricultural use.

Land Speculators. Speculators purchase rural land in anticipation of an urban-use demand for the space it occupies. They purchase with the sole object of reselling in large blocks, either to other speculators or to developers. Usually they add nothing to the land except cost. Although the value of the land they purchase may have been rising for a number of years as the city grew and moved nearer, their very act of taking the land out of agriculture gives it added value. The transaction gives the impression—which

can snow-ball into a land boom—that someone wants the land more than does the farmer who sells it.

Land idleness results when the activity of speculators is far ahead of urban use demands. Once removed from agricultural use, it is unlikely that land ever will be returned to that use. Idleness breeds idleness; the longer land is idle, the higher is the cost of getting it into an urban use, except through bankruptcy or foreclosure, and hence the ripening period may be greatly lengthened. Land usually is taken out of agriculture at a price higher than farmers can pay to bring it back into that use. In order to get it, speculators must pay farmers more for land than it will return under cultivation.

Speculators expect to sell property at a profit above its cost to them up to the time they dispose of it. This cost includes not only the original per acre cost of the land itself, but also that of title search, insurance and transfer, taxes, and in most cases, maintenance, preliminary development costs, and interest on these expenditures. In order to reduce the holding cost, very often no more taxes are paid than just enough to forestall a tax sale. Tax delinquency penalties are part of the holding cost. Thus, much land has remained idle because, as holding costs increase, it becomes increasingly difficult for speculators sell a part-interest in a property, costly for potential purchasers to buy.

The situation is aggravated when speculators sell a part interest in a property, usually to meet the cost of holding this or some other property. This was a common practice toward the end of the boom period of 1920-1929, and many acres of land around Philadelphia lay idle for 10 years because of a claim on it by a bank that closed in 1933 or by an estate in the process of settlement.

Promoters. Following the original change in ownership and the usual shift from agriculture to non-use, developers enter the process to perform the next step in land development—platting. In most cases, platting follows the general pattern outlined in the discussion of transportation. Usually a "plan" is drawn of the new community that is to be developed, fixing the location of each street and lot. Prior to the lot-selling campaign, preliminary development may range from nothing but staking out lots to paving streets and sidewalks, installing water and sewer lines, and even to building a few attractive homes. With the advent of the developer, people are first acquainted, through billboard and newspaper advertising, with the advantages of life in "Glenside Manor." Development promoters draw customers with glowing descriptions of lower taxes, more living space at lower costs, clean water, fresh air, and a better environment for the rearing of children.

The promoter may or may not be the same person, partnership, or corporation that removes the land from its rural use. Hence, a change in ownership does not necessarily accompany this step in urbanization. When development activity begins, adjoining rural land takes on added value and may immediately be withdrawn from agriculture just as was the land being developed. Thus the process continues under the impetus of expected future alternative uses.

Promoters can be grouped in two general types—community developers and speculative promoters. The former includes those individuals whose activities are directed toward permanent residential communities; the latter, those promoters whose activities consist only of transferring tracts of land. In the case of both

types, their activities largely determine the future of the communities they found.

Speculative Promoters. When promoters are interested *only* in the profitable disposition of acreage, subdivisions are laid out for profitable return on the investment and little thought is given to future occupancy. Tracts are subdivided to yield the greatest number of lots—whether houses built there would be too crowded does not concern the speculator. Lots are sold both to other speculators and to people who want a home-site. In the case of the former, the sale appeal stresses the soundness of investing in land, rising land values, increased demand for rural residences, the proximity of other attractive and flourishing subdivisions, and rapid transportation facilities to the city. On the other hand, when the prospective buyers are people with limited funds who are looking for a home-site, the appeals vary somewhat. In addition to the above, the low cost of the lots in question, the virtues of home ownership, and the advantages of rural living are stressed.

The important point here is that regardless of who purchases the land, if the activities of the original promoter indicate no interest in the community's future, the result usually leads either to non-use, sparse settlement, or the growth of communities in which properties have little resale value. Scattered over the rural areas of Philadelphia and adjoining counties are hundreds of acres that were platted during the boom days of 1920-1929, when people were willing to buy almost anything passing for future residential or other urban use sites. Land prices were increasing out of proportion to their use value and most of the lots were bought for profitable resale—not for residential use. More lots were sold than were needed for many years. Consequently, these idle

acres have changed hands many times. The transactions fostered high mortgage indebtedness and tax delinquency. The land involved in speculative activity has become frozen in a useless pattern of poor sites, small lots, and narrow streets. Tax delinquency and legally-questionable ownership complicate the pattern. Local units of government in which these conditions exist are not ready to realign the land into a useful pattern, and until they are, other property must carry that portion of the tax base which is lost through misuse and idleness.

Where people have attempted to live in developments of highly speculative origin, rural slums often resulted. Most of the families have built shacks or very cheap houses because they could afford nothing more; the absence of building restrictions permitted them to build as they pleased. People who can afford better-built homes shun unrestricted and speculative developments because of the lack of such improvements as city water and paved streets, and because the small lots and poor houses lower the value of adjoining properties.

Larchmont Square is an example of the type of development described above. In 1921 a speculator paid \$30,000 for a 60-acre farm in Newtown Township, Delaware County, about 10 miles west of Philadelphia. The land lay three-quarters of a mile from West Chester Pike and the trolley line between Philadelphia and West Chester. Because of the distance to public transportation and the poor drainage of the land, the farm was sold for about half the price of acreage in better sites along the trolley line. Following the first transaction the farm lay idle for a year, during which time the buildings were remodeled. Later these buildings and two acres of land were sold as a summer residence. In 1922 the tract was platted into 400 lots

on ten streets. None of the streets was paved. All the lots, except those fronting on the Township dirt road, were 20 x 50 in size. On 4 of the 40 x 100 foot lots along the Township road attractive bungalows were built, priced to sell quickly. Lots were sold at \$100 to \$300 each, except for the large front lots which brought around \$500.

Until the depression days following 1929, few people took up residence in Larchmont Square. Most of the buyers expected to benefit by the re-sale of lots—not by living on them. After 1929, however, buildings of all types and descriptions were erected by depression-stricken families who salvaged little more than the 20 x 50 lots they had bought in the country. Many of the homes were built solely by the lot-owner and his family. Consequently, a large proportion of the buildings are small, poorly constructed, single-story dwellings. For 10 years following the platting of Larchmont Square, wells were the only source of drinking water. Sewage still goes into cess-pools. The speculator's interest in the buyers ceased with the sale of the lots.

Following the increased population came a demand on the part of the residents of Larchmont Square for public services. Water was piped in by the company supplying water to most of the suburbs west of Philadelphia. Still later, using WPA labor, the township macadamized a few of the streets and erected street lights at several intersections. There is a school only one-half mile distant, and police and fire protection are provided by the Township.

Except to the residents of Larchmont Square, the development has been little more than a public burden since its inception. During the greater part of its being, its residents have not paid taxes in proportion to the services they demanded.

Many of them didn't want to, some of them could not. Tax delinquency increased from 13 lots assessed at \$650 in 1930 to 4 houses and 51 lots assessed at \$8725 in 1939. In the 1940 Treasurer's Tax Sale, 127 lots assessed at \$8900 were "sold" to the county. During the 10-year period cited, the assessed value of lots remained unchanged—ranging from \$50 to \$200 per lot.

Unfortunately, until 1937 most speculative real estate promotion produced some variation of the type of community described above. However, there were a few exceptions, especially among operators selling houses as well as lots, those operators interested in "estate" development, and those whose activity was controlled in first-class townships where zoning ordinances were enforced.

Community Developers. When a developer is concerned with the growth of a permanent community of either high- or low-cost housing, it is reflected in his preliminary activity. Locations are chosen with an eye to the natural drainage, availability of a potable water supply, and proximity to transportation, schools and churches. An established shopping center is desirable but not necessary, since it usually grows with a community if space is provided for that purpose. In platting the land, lots and streets are laid out on the contours. Streets often follow a winding pattern to discourage through traffic and speeding, and are hard-surfaced. Lots are large and have at least a 50-foot front. Deed restrictions often are used to prevent the building of shacks and other objectionable uses. Springfield is an example of the type of community that results from the activity of a developer who, of his own volition or otherwise, considers the future of the community.

Another type of promotion engaged in by the community developer is that of "estate" development. Here exclusiveness is stressed. Lots are large, ranging upwards in size from one-half acre. The land is well graded and landscaped. Water mains are laid under paved streets. Building restrictions are included in deeds to insure future home owners against low-cost housing and other encroachments on their "exclusiveness." Such developments often are located close to golf courses, country clubs, and riding academies and hunt clubs. During the boom days of 1920-1929 many golf courses were laid out primarily for the purpose of selling adjacent lots. In some cases, so many lots have been sold that the golf course now is only a slice of its former 18 holes. In contrast to most other subdivisions, little attention is given to available public transportation, for it is expected these residents will build \$20,000 homes and at least 2-car garages.

It should be noted that in no case is preliminary development a guarantee that lots will blossom into prosperous communities. On the other hand, a complete lack of good planning almost invariably leads only to continued vacancy or at best to haphazard growth of a socially undesirable type.

Contractors and Builders. During the early growth of metropolitan Philadelphia when lot speculators were most active in the urbanization process, development jumped over large areas of land lying in the suburban belt close to the city. Much of the land, especially that adjacent to the older and more settled suburbs, was platted into small lots and small city blocks during the early period. Because of its high development cost and the urban land value attached to it, this land lay idle un-

til contractors and builders came into the process. In contrast to the types of individuals described above, this group made profits on the building and sale of houses and wanted land merely as a means of engaging in the construction business. As both developer *and* builder, they have been responsible largely for closing up the vacant spaces between earlier railroad and traction company subdivisions. Extension of trolley lines, the advent of bus lines, and greater use of automobiles gave impetus to interstitial growth as well as to the development of remote tracts that had been retarded by the distance to rail transportation. Before 1930 builder-developers capitalized on the growing demand for suburban homes and overcame the obstacle of high valuations and high developmental costs by building row and semi-detached houses.

The desire to build the greatest possible number of dwelling units on a given area of land has resulted in a crowding of population to an extent that such communities are fast losing their residential value. Tenure is not stable and many people avoid the congestion by locating still farther out in the country when buying or building homes. The 69th Street section of Upper Darby Township and other suburbs in the urban zone adjoining the city are examples of this type of development. Even in sections of Drexel Hill—until recently "the" place to live in Delaware County—some families have moved since 1936 because the houses are too close to one another. Land in this suburb was extremely high-priced when the houses were built around 1920. The lots were often not much larger than the space occupied by the 8- and 10-room houses built thereon. On the other hand, where builder-developers provided more space

per unit and built detached houses in attractive settings, there has been little or no exodus.

Urbanization During and Following the Depression

In the depression period, 1930-1936, banks and other lending agencies were forced to foreclose on mortgaged platted land. Nearly all development activity ceased, and grass and brush soon covered paved streets, sidewalks and the fireplugs of some of the once-promising suburban developments. Excessive credit based on inflated land values largely disappeared, as did most purchasing power, while the various real estate financial interests schemed desperately to salvage something from the excesses of the previous boom period. Particularly in the speculative developments, the land ownership pattern became tangled in a mass of mortgages, liens, notes and assignments.

Through it all, however, linear and isolated growth continued in low-income areas and shack towns, and the number of scattered part-time farms and rural residences increased. For example, people moved to their lots in Larchmont Square and themselves built inexpensive houses. The more fortunate moved to their summer cottages at Castle Rock where they dug a cellar under existing structures and weather-stripped the building for year-round residence. Some farmsteads that had been vacant for years became part-time farms or rural residences. Thus, urbanization continued slowly on through the depression. After the upturn from the depression, many of these people improved their properties and remained there.

Following the depression, builders and developers again became active, but pri-

marily in the sale of homes, not lots. Several factors contributed to this functional change. That they were active at all was due largely to a favorable and active interest in low- and medium-cost housing on the part of the federal government. There was a growing demand for homes within easy commuting distance of the city. Industrial employment was picking up but people lacked purchasing power. They had no savings and credit was tight. Banking regulations were strict insofar as loans on real estate were concerned. The Federal Housing Administration was established to ease the growing housing shortage and at the same time stimulate the building industry. The surplus of land and lots facilitated home construction. By reason of the manner in which it operated, however, credit was made available through guarantee by the FHA only for building, not for speculation. The movement as a whole had the desirable effect of freeing land which had been tied up since the early days of the depression. Governmental financing agencies now have greater control over land development. If credit is made available only to those building houses, it gives impetus to land development only to the extent that actual building takes place. By stipulating the condition under which loans will be made for building purposes, the agencies automatically control the type of land development.

Role of Credit

Credit has been one of the most potent forces in urbanization, determining to a large extent the activity of both speculators and bona fide home purchases. Before 1936 prospective home owners obtained credit at 6 per cent or more interest through local banks and building and loan

associations. Because buyers were required to have a substantial portion of the total purchase price in cash, most homes were built or purchased by men well-established in their trade, business or profession. Most of the people who moved to the suburbs were middle-aged or fairly well-to-do.

After 1936 controlled liberal credit terms of the FHA made it possible to purchase a home with cash amounting to only 10 per cent of the total price, for those who had a steady income and a reputation for honesty. Because the mortgage period has been extended to 25 years, carrying charges per month are lower than usual monthly rentals in the city. This program contributed to a building boom that was terminated by a shortage of construction materials early in 1942. One-half of the buyers who moved to the suburbs during the last few years were less than 35 years of age, and the communities of today, in marked contrast to those built up shortly before and after 1900, are being settled by young people. The outer boundary of the suburban zone extended slowly after 1936, but the zone was filled in considerably. Less dependence on fixed rail transportation through wider use of buses and automobiles contributed to the solidifying of this zone.

Credit restrictions and controls placed in effect since 1930 have greatly modified the activity of speculators and developers. Before 1930 and especially during the previous decade, banks and other lending agencies encouraged real estate speculation through easy credit policies. Speculators could obtain large loans based on inflated land values with no more security than the property itself. It was possible for unreliable and dishonest speculators to operate large real estate businesses and risk other people's savings in their deals.

Since 1933 the mortgage loan policies of banks have been subject to public control. It is no longer possible to obtain credit backed only by inflated land values. The activity of the federal government in low-cost housing has effectively influenced the real estate market. Private lending agencies have to compete with the low interest rate and long mortgage term guaranteed by the FHA.

Social Controls in the Urbanization Process

Individual Control. Individuals and groups of individuals exercise a strong influence in urbanization. Individual developers long have used deed restrictions to insure the exclusion of undesirable uses of land and types of buildings. Not only types of use and construction, but also types of owners, are regulated through this control. Control of set-back lines and specific types of residential construction, and, in a few cases, the exclusion of certain races of people and various objectionable and "nuisance" uses have been effected. In some of the subdivisions around Philadelphia, deed restrictions prohibit the ownership or occupancy of land by "persons of African descent." The extent to which deed restrictions are used and the form in which they are drawn is determined not only by the prejudices of developers but even more by the class of buyer they want to attract.

Custom. Custom, too, influences urbanization. Welsh Quakers were among the first purchasers of large tracts of land from William Penn. They settled all along the high ground between Darby Creek and the Schuylkill, establishing themselves most firmly at Merion, Haverford, and Radnor in the present "Main Line" section. William Penn, who had much to

do with starting these suburban developments, was a shrewd real estate dealer as well as a great statesman. He was fortunate in having at hand a clientele of more than moderate means, splendid cultural background, and common religious affiliation, into whose hands he put the best farm land as rapidly and generously as possible—contingent, in many cases, upon the number of city lots purchased by the recipients of the farm land. In doing so, however, he retained the title for himself but secured the tenure of the grantees. The "Main Line" communities can be traced back to one of these grants, the Welsh tract of 40,000 acres in the lower end of what is now Montgomery County.

Out of this background of landed gentry grew the pattern of large estates and country homes that makes up a large part of the lower end of Montgomery County and the northern section of Delaware County, just west of the city. A large part of the social register of the city is made up of these families. They control both the culture and the industry of Philadelphia. Furthermore, they take great pride in their cultural and historical background, and are keeping their estates intact.

The pattern of land use in this "Main Line" estate area is significantly different from the remainder of the suburban zone. Here lies the only section around Philadelphia that has withstood real estate booms and the attendant speculation and subdivision. It appears that the estates will continue much as they now are and most of the future expansion will take place outside the estate area. The few estates that have given way to urban pressure have been broken down into "estate" developments with lots one-half acre or larger in size.

Public Regulation. Health laws, build-

ing codes, fire regulations, and planning and zoning ordinances exert pressure within the urbanization process. However, they act only to implement the process—to control people's actions within it—not to direct it in its main form. These regulations are not retroactive and usually are not put into effect until their need is felt strongly. Hence, they do not come into the process until population begins to assume proportions of heavy density.

Planning and zoning are urban innovations that have been used only within the past 10 years to control and direct land use in suburban and rural areas in Pennsylvania. Even first-class townships had no power to zone until 1931, and planning and zoning enabling legislation pertaining to second-class townships and counties was not enacted until 1937. Townships in the vicinity of Pittsburgh, Harrisburg, Lancaster, Allentown, and Philadelphia have taken advantage of this legislation, but only one rural county has a zoning ordinance.¹

Zoning in first- and second-class townships around Philadelphia will have an increasingly greater effect upon urbanization. Some of the ordinances now in effect contain measures designed to prevent land speculation. In some of them a developer cannot sell lots in a subdivision until water and sewer mains have been laid under hard-surface streets. Use-zones and building regulations are effective community-development controls that are coming into wider use in the metropolitan area.

Urbanization After the War

At the present time there is a shortage of houses, not only in metropolitan areas

¹ See Larry F. Diehl, "Ordinance Causes Ordinance in Crawford County, Pennsylvania," *Journal of Land & Public Utility Economics*, August, 1942.

but also in many rural communities near new war industry plants. As the war and the present rates of population migration continue, the shortage will become more acute. In the Philadelphia metropolitan area many homes were built during the 4 years preceding 1942. The ban on construction terminated building activity before the full needs of the area had been met.

Housing construction and subdivision development will be continued after the war on a large scale. Aside from the pressing need for housing space, building will be encouraged because of the employment possibilities offered in the industry, and the necessity of providing productive employment for the thousands of men coming back from the armed forces and from war employment. Municipalities can well afford to develop housing authorities now in order to take full advantage of the federal assistance that can be offered such authorities following the war. With such assistance many cities may be able to clear away their worst slum areas, thus not only providing employment and better housing, but also alleviating some of the fiscal and social problems accompanying slum areas.

The experience of the past post-war period indicates that only strong controls and thoughtful planning can avoid over-expansion and unplanned, haphazard developments following the present world conflict. Research in urbanization indicates that to prevent over-expansion and undesirable development it is necessary to control lot sizes, the location of subdivisions, the characteristics of developments, and the general activities of real estate promoters. These controls have been exercised in the past in two general ways—through zoning regulations by municipalities and through credit control by

the federal government. Quoting Wehrwein of Wisconsin:

"County zoning has made a beginning in directing and controlling the land uses of the rural-urban fringe. . . . Combined with other directional measures, such as subdivision control, platting control, health and sanitary codes, many of the cities and counties of the United States now have the power to prevent haphazard, unharmonious, and incompatible land uses in the rural-urban fringe."²

Other research carried on by the Bureau of Agricultural Economics points to another control that may be desirable following the war—control of land values:

"The danger that land values during the emergency will reach levels substantially in excess of those warranted by long-run income expectations is widely recognized. Although differences of opinion exist concerning the seriousness of this danger, there is fairly general agreement that possibilities for direct controls in the farm real estate market should be given early and careful consideration."³

The statement can be applied to urban and suburban as well as to rural land values. The methods suggested for control are: (1) mortgage debt ceilings; (2) tax measures, such as land transfer taxes, resale gains or war increment taxes, taxes on rents, and mortgage taxes; and (3) price ceilings.

Whatever controls are used, attention should be given Dr. Wehrwein's remarks concerning the rural-urban fringe:

"... the rural-urban fringe is really an extension of the City itself, actual and potential. It is an area where most of the land uses are in a flux and therefore subject to planning direction, and control. . . . Since the city or cities of a metropolitan area and

² George S. Wehrwein, "The Rural-Urban Fringe," *Economic Geography*, July, 1942.

³ M. M. Regan and Fred A. Clarenbach, "Emergency Control in the Farm Real Estate Market," *Journal of Farm Economics*, November, 1942, p. 886.

the suburban or fringe area are a unit economically and sociologically, the entire area should be thought of and planned as a unit. Within this region there should be a proper place for every structure and land use needed by people living therein. The lowly and despised junk yard has become a vital element in national defense and deserves a place in the regional plan just as much as the high class residential area. This place is not found by zoning it out of "higher" land use districts. Much of our planning and zoning has been inadequate because it sets up a hierarchy of land uses leaving farm land and other non-urban land as a residual or as an unrestricted area upon which everything may be unloaded." And finally, "... mere power does not carry with it the desire, courage, or the wisdom necessary to make for a well planned rural-urban region and the proper structure of land uses in this transitional area."⁴

These must stem from the citizens of the region itself.

Conclusion

Urbanization is defined at the beginning of this paper as a process in which competition among uses changes the pattern of occupancy and use of land from rural to urban.⁵ Although specific refer-

ence to competition as such is limited in the discussion, the substance of the competition has been shown through examination of the predominant aspects of urbanization. One of the most apparent of these aspects is that agriculture cannot compete with urban uses for land because, to put it simply, income to support urban uses does not come from the land. Urban uses can afford to pay more for land than it will return in agricultural production. Higher returns, coupled with the concentration of purchasing power in a growing city, effectively smother opposition to the displacement of rural uses.

Until the past few years, society as a whole gave comparatively little concerted direction to urbanization. Forces operated within the process largely in a manner inimical to portions of society. Although these forces have been subject to greater regulation since 1930, social control is not yet adequate to eliminate the less desirable aspects of urbanization, particularly the undesirable impacts on agriculture. Inasmuch as urbanization has a pronounced effect upon agriculture, a strengthening of urbanization control must be a part of agricultural post-war planning.

⁴ Wehrwein, *ibid.*

⁵ It has been defined also simply as a process of population concentration. See Hope Tisdale, "The

Process of Urbanization," *Social Force*, March, 1942, p. 311.

Rate Policy of Interstate Commerce Commission for Back-Hauls of Trucks: Pricing and Joint Cost

By HUNTER MORRISON*

Introduction

JOINT cost is becoming daily more significant to pricing as manufacturing processes yield more by-products. Average full cost and marginal cost have been the norms of classical economics for long-run price-making by private enterprise and government. Actual pricing may deviate from the norm in proportion to the relative importance of joint to total cost per unit. Since the joint cost of a number of commodities may be allocated in an arbitrary manner, price may vary to that extent. Varying degrees of competition among the joint products will result in prices on some commodities just recovering direct cost while others must, in addition, recover most of the joint cost. In establishing some maximum price ceilings, the Office of Price Administration is confronted with determining the cost of each of many items for a single firm where joint cost is a large proportion of the total. The same problem arises with service industries, such as transportation.

Most transportation routes—whether rail, water or truck—normally are unbalanced, in that non-specialized as well as specialized equipment is consistently more fully loaded in one direction than in the

opposite direction.¹ Generally, a similar degree of unbalance in the same direction is met by all competitors between two given points. While statistics are not available to substantiate this tentative conclusion, it is reasonable on *a priori* grounds and on the basis of rate cases and general knowledge of traffic movements. The condition of unbalanced traffic routes, prior to the war, arose out of the development of consumption centers far from specialized producing areas. Bulky and heavy raw materials and semi-processed materials frequently move to manufacturing and consuming centers while finished commodities move in the opposite direction in quantities requiring less space. Historical accident is responsible for the character of some of the current traffic flow. The natural physical advantages of certain areas of a generation ago may no longer exist, but by virtue of the present concentration of population or processing plants, these areas retain their economic advantage over new, undeveloped areas. Finally, regulatory policies of state and federal governments have aggravated unbalanced traffic through restrictions on operating rights and on rates.

Because most carriers operate regularly between two termini, joint cost on the

* Baltimore, Maryland. This paper is part of a larger study of truck rate regulation which was undertaken by the Bureau of Agricultural Economics, United States Department of Agriculture, under the direction of James C. Nelson. All views expressed are those of the author.

¹ Balanced movement may be taken to mean one where no more than 60% of the round-trip volume of traffic not requiring specialized equipment is moved in one direction on the average for several years.

back-haul (return haul) is encountered on every round-trip. How should the various types of traffic bear the round-trip imputed cost? How can aggregate revenue be maximized after allowing for aggregate short-run marginal cost of the back-haul?

Because it is impossible to assign joint costs to specific units of traffic, considerable latitude may be used in setting rates where the cost of service principle is adopted. Should rates adhere as nearly as possible to cost factors, should they be determined solely by demand, or should both elements be determinates? The development of reasonably well-balanced movements is a long-run phenomenon because of the time required to change our consumption and production patterns where transportation cost is only one of many locational factors in establishing new production facilities. A rapid shift of facilities would be more costly than the savings in transportation cost arising from the adoption of lower promotional rates which may be temporary. Nevertheless, an "economic" rate policy is part of the larger problem of obtaining the "best" allocation of resources.

Back-haul rate policy can influence substantially the location of production where there is considerable choice, i.e., manufacturing. Obviously, its effect upon the location of agricultural production and of extractive industries is very much less, though not entirely absent. The West will continue to ship bulky raw materials to the East in return for more compact processed commodities.

The discussion of this joint cost problem will be limited to the experience of the Interstate Commerce Commission (I. C. C.) with interstate for-hire highway carriers whose rates came under its jurisdiction in 1936. The study is further

restricted to the Investigation and Suspension decisions (I & S) of the Commission. These are concerned with proposed rates applicable only to the future, all of which were analyzed down to December 11, 1940.

Of the 193 decisions studied, 41 or 22% were concerned to some extent with an unbalanced movement. The Commission discussed the return-haul aspect in at least half of the 41 decisions. Suffice it to note that quite a number of cases involved back-hauls of numerous carriers from the Southwest and South to St. Louis and Chicago, from the West and Northwest to Chicago, and that carriers operating from cities to rural areas generally have heavier outbound than inbound movements. This is due, in large part, to partial inadaptability of a given truck for both processed articles and farm commodities. However, it is caused in no small measure by restrictions on operating rights by the federal Motor Carrier Act and by state laws. The preponderant traffic is in the same direction, in most instances, for railroads as for trucks.

When a motor freight operator is confronted with the joint cost situation of back-hauls, it is profitable for him in the short run to establish rates above the added cost of any freight on the return haul. Thus, if a trucker plans to drive empty on the return trip but learns that he can obtain a load to pay him more than 5 or 6 cents a mile,² it will then be a net gain to accept the load. The burden on main hauls will be relieved to the extent of the excess over 6 cents. The cost

² Added cost of shipment estimated by author. He knows of no cost analyses by the Commission or by carriers for which the added cost of return hauls has been computed. It would include the cost of additional mileage and handling incurred in pickup and delivery, added gas consumption on the road and a number of minor items.

of driving an empty truck is likely to be about 15-18 cents a mile, which must be charged to the main haul if it is to be continued in the future. This total round-trip cost may be met by high rates on a low volume of traffic or by low rates on a larger total volume of traffic where demand is elastic. Such promotional rates may cause a decrease in traffic on geographically competing routes and bring about cut-throat competition. On the other hand, there may be a net gain in traffic arising from a response to somewhat lower rates.

The guiding principle should be that back-hauls are subject to joint costs which comprise possibly 75% of total cost on the return haul. By definition, joint cost cannot be attributed directly to main haul and/or back-haul traffic. Therefore, the pricing of this traffic, from the viewpoint of the carrier, should depend upon the relative elasticity of demand for traffic on the main haul and on the back-haul in order to maximize net revenue.

Theoretically, the cost-unit is the round-trip because the trucker will not make a second round-trip unless revenue from the first is at least equal to its average full cost,³ or unless there is a good prospect that revenues will recover cost of the second trip. However, truck operators do not estimate gross revenues and average cost before deciding to make each round-trip. Actually, a truck will make many regular trips before the profitability of the route is reviewed. From the point of view of all carriers, any rate on back-haul traffic which is greater than the costs specifically attributable to it and which causes an increase in the total volume of this traffic (not simply a diversion from another car-

rier) is a net gain. To maximize net revenues or minimize net loss in general, the back-haul rates will be lower than those on the main haul in order to encourage utilization of excess capacity. However, there may be particular units of back-haul traffic whose demand for transportation is less than unit elasticity wherein a rate reduction would not be beneficial to carriers. Previous shippers gain by the amount of a rate reduction; and new shippers gain new outlets by the introduction of promotional rates. The economy might gain if there were simply a diversion from sub-marginal to supra-marginal carriers because the former would be eliminated.

Description of Commission Rate Policy

The policy developed for those movements involving return hauls is simply an extension of the Commission's policy toward all other truck rates where cost is in issue. Proposed rates (usually reduced) must recover average cost of the traffic in question of all carriers who are parties to the proposals. Consistently, the Interstate Commerce Commission has so held, by implication,⁴ for return haul rates.

In January, 1939, an unwavering precedent (subsequently referred to many times) was set forth in *Refrigerator Material from Memphis, Tenn. to Dayton, Ohio*, 4 M.C.C 187.⁵ A proposed reduced rate on refrigerator materials to yield only

⁴It is usually stated in the decisions that the proposals can be justified only on the out-of-pocket cost basis, rarely that they fail to recover average cost. But the context indicates that the latter is the proper standard.

⁵One of the principal examiners of the Motor Carrier Bureau stated, late in May, 1942, that this precedent was in effect; and a review of the digest in *Federal Carriers Service*, published by Commerce Clearing House, Inc., of every Investigation and Suspension decision from then to December, 1942, indicates no change.

³This paper is not concerned with distinctions between average and marginal cost in the usual sense, nor between short-run and long-run average cost.

5.8 cents per truck-mile was involved. (Average cost probably was 15-20 cents per truck-mile.) Respondent's equipment had been moving empty or partially loaded from Memphis. This traffic would have been diverted from the railroad and not from other truck lines. In denying the reduction, it is of interest to note that the Commission stated that railways had been predicating rates on out-of-pocket cost "from time immemorial" and that to some extent this policy is used to meet truck competition. This practice had been condoned by the Interstate Commerce Commission.

Commission Reasoning. The rationalization for rejecting short-run marginal cost as a basis for determining back-haul rates in the *Refrigerator Materials* case was: (1) fear of extending short-run pricing into the long-run; (2) fear that truck competitors would be forced to reduce rates in the same direction and disrupt the rate structure; (3) fear of reducing truck rates in both directions below average cost in cases where truck competitors have less than capacity loads in opposite directions; and (4) the belief that truck rates should not be permitted to meet rail rates except where the latter have been predicated on out-of-pocket cost. These four points deserve some amplification.

First, the short-run justification for increasing revenues over and above the added cost of back-haul traffic might become a liability in the long run. The Commission said:

"'Out-of-pocket cost' is an elusive and shifting thing. When traffic can be added in this way without any increase in truck-miles or man-hours, such cost is one thing, but if sufficient traffic is attracted so that more truck-miles or man-hours are required, it becomes a very different thing." (*Page 189, this case.*)

Second, truck competitors might reduce rates in the same direction and disrupt the truck and rail rate structures or relationships on various commodities and on additional routes. Again, the I.C.C. stated:

"Furthermore, it is always necessary to bear in mind the fact that the method is not a one-way affair, for competitors can use it as well, and where competition is widespread the result may be to beat down a very large part of the rate structure." (*Idem.*)

Third, in the case of trucks, the rates would tend to break down not only in one, but in both directions.

"The dangers are, if anything, even greater in the case of motor carriers than in the case of railroads. An unbalanced condition of truck traffic, because of the greater number of operators, is apt to be somewhat of an individual matter. That is to say, the traffic of one truck operator may preponderate in one direction, whereas that of a competing operator may preponderate in the other. As between operators, therefore, the application of the 'out-of-pocket' cost method of making rates might well result in a break-down of the rates in both directions." (*Idem.*)

Fourth, in this proceeding, the rail earnings on the same traffic were amply remunerative. Hence, the Commission believed the rails would not hesitate to reduce their rates if they lost a substantial volume of traffic to respondent. Further, the rails might cut under the higher south-bound truck rates upon which respondent was dependent for profit. The I.C.C. concluded with a warning, not relevant to the particular case, that when the rail lines are permitted to construct rates on the out-of-pocket basis, the trucks "must fairly be allowed equal leeway."

Two months later the Commission had occasion to apply this qualification where the average anticipated truck-mile earning would be 10 cents and the current rail

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earnings would not return average costs because the rail rates had been reduced to meet severe competition of all forms.⁶

There has been no unanimity of opinion among the Commissioners as to either the policy adopted or the reasoning developed in support of such a policy of average cost in each direction. Commissioner Alldredge, dissenting in October, 1939, noted:

"A well-balanced movement is an important factor in determining the reasonableness of rates. For example, in *Lake Cargo Coal Rates*, 1925, 126 I.C.C. 309, the Commission required certain reductions in the rates on lake cargo coal from points in Pennsylvania, Ohio, and West Virginia upon a showing, among other things, that the railroads which hauled the coal from the complaining regions to the lake ports received return loads of iron ore, but that no such return loads were received by carriers serving other fields from which no reductions were required."⁷

In September, 1939, the Commission lent a sympathetic ear to promotional rates on the back-haul provided they do not precipitate rate cutting. Nevertheless, the proposed reduced rates to equal rail rates were denied because the rail rates were very profitable while the truck rates would cover only out-of-pocket cost on the return haul. It noted that:

"This is a situation where transportation by railroad is plainly more economical than transportation by motor carrier. On the

other hand, it is equally plain that if respondents could obtain a portion of the traffic under the rate proposed, and if there were no further competitive reductions, respondents would profit, because the revenue received would materially exceed any addition to present expenses which would be caused by the new traffic. In other words, the added-traffic theory here constitutes just as sound a defense for the rate proposed by respondents as it has constituted in the past for many rates which the railroads have been permitted to establish in competition with water carriers, other railroads, and even motor carriers. We must be consistent in such matters, and if the railroads are to be permitted for the future freely to establish competitive rates on the added-traffic theory, like latitude must be given their competitors. The problem is one of exceeding difficulty, and its sound solution remains in the realm of controversy."⁸

Again, a year later, the desirability of reducing empty movements to achieve more economical operation was conceded, but rate reductions should be kept within undefined "reasonable" limits. The proposed reductions were denied, though the I.C.C. said:

"We are not unmindful of the lawfulness or desirability of the efforts of the managers of common carriers to secure traffic to furnish lading for transportation units which would otherwise move empty. Such efforts necessarily tend toward the goal of transportation service to the public at the lowest cost consistent with the furnishing of such service. The result of finding remunerative 'back-haul' traffic might well be the means for removing from the going heavy volume of traffic the burden of the cost of empty return movement, and bring about true economy in operation. But there are limits beyond which such efforts cannot reasonably be permitted to go."⁹

⁶"As rail carriers appear to have established and continue to maintain rates on stoves from and to points herein, minimum 10,000 pounds, based on out-of-pocket costs, the motor carriers 'must fairly be allowed equal leeway.' For this reason, we feel constrained to find the proposed rates justified. However, it is evident that the railroads and motor carriers should put their houses in order and avoid this destructive competition." *Stoves from Alabama and Tennessee to Interstate Points*, 4 M.C.C. 641 (649).

⁷*Food Products from Pittsburgh to Trenton, N.J.*, 19 M.C.C. 463 (467).

⁸*Leather from Middlesboro, Ky., to Chicago, Ill.*, 18 M.C.C., 265 (268-9).

⁹*Onions and Potatoes from North Dakota to Twin Cities*, 26 M.C.C. 153 (157).

This limit appears, in the light of all decisions in which the compensatory test is a factor, to be average cost for the traffic in question.

Analysis of Commission's Position

The I.C.C. gives emphasis to one aspect of developing back-haul traffic which may readily be overlooked. Very low promotional rates may require additional truck-miles and/or man hours to handle greatly augmented traffic. But it need not follow that truckers ignore the costs of added man hours at the terminals and those for overhead in quoting rates designed to develop a balanced movement. Not all phases of truck operation will reach optimum utilization simultaneously. For example, excess terminal capacity may exist when line-haul capacity is 100 per cent. A given increment in traffic will affect the various cost elements differently. The carriers should simply give recognition to these added costs when establishing rates lower than average cost. The argument of the Commission should mean only that carriers be certain that the proposed rates truly cover all added costs that may arise in the long run from such added traffic. It should not presume that the carriers will offer rates which will overtax their current capacity.

As its second point, the Commission properly notes that competition would force other carriers to reduce their rates in the same direction below full cost. In the eyes of the carriers, rate-cutting in the same direction can be justified in the short run only if the added gross revenue is no less than the added cost of the new traffic. Furthermore, if some traffic had been moving at higher rates, the revenue from the new traffic must recoup revenue lost on the first units in addition to its

out-of-pocket cost. Consumers, by having more goods moved at a lower transportation cost per unit, would gain to the extent that the savings are passed forward. If the reduced rates simply result in a temporary redistribution of the limited back-haul traffic among the several carriers, shippers and consumers would gain at the expense of the carriers. The experience of the railroads in reducing rates to out-of-pocket cost for return hauls would be useful in ascertaining to what extent these rates stimulated new traffic. But this would require a study beyond the scope of this paper.

The I.C.C. also argues that a "very large part of the rate structure" might be disrupted. The effect upon rate relationships of reducing a single rate may be likened to the dropping of a pebble in a pool which results in ever-broadening concentric circles of waves diminishing in size. The rail rate structure, to which many truck rates are tied, is the product of many years of higgling over nice adjustments among rail carriers, shipper-representatives and the Commission. The rates on short-haul and high-value traffic have been higher than rates on long-haul and low-grade traffic when reduced to a per-mile basis. But if the revenue of the rails should be reduced substantially by a competitive truck rate reduction, the rails, in order to remain solvent, may be forced to recoup this revenue from other traffic. Yet, rail rates on this other traffic may already be set to yield maximum returns. Thus, disruption of the rate structure may lead to new bankruptcies or government subsidies.

The rail lines may, according to the I.C.C., cut under the higher truck rates applying in the preponderant direction upon which the truck operators are dependent for profit. As a matter of fact, this situation has arisen in very few de-

cisions subsequent to the *Refrigerator Materials Case*.

One argument advanced is that protection of the rail and truck rate relationships may result in the application of low rates to commodities, the flow of which is sensitive to changes in freight rates, and high rates to commodities whose movement is not affected by a high level. Charging what the traffic will bear has been an important factor in the development of rail rate relationships. Thus, the total number of ton-miles would be greater than if the rail structure were demolished by strict adherence to average cost. Not only shippers and consumers would gain but net revenues of the transportation system would be increased.

Assuming that the 41 decisions involving return hauls are typical of all other truck rate charges where back-hauls are a factor, it appears that disruption of the rail and truck rate structures in reality is not serious. It was the sole basis of protest in 3 out of 41 decisions involving return hauls. The Commission denied one and granted two proposals. In one of these, the I.C.C. agreed with respondents that the rates should be increased solely to eliminate the tendency to disrupt the structure of rates. Demoralization of the rate structure was one of several charges by protestants in 11 proposals, 9 of which were denied by the Commission. None of the protestants charged that this was a factor in 27 cases, of which 21 were denied wholly by the I.C.C. Hence, when the Commission denied proposals where the breakdown of the rate structure was one of several factors considered, it is highly improbable that the I.C.C. was influenced greatly by this one factor. Usually the Commission emphasized the compensatory character of the rates as measured by anticipated revenue and rate com-

parisons, the nature of carrier competition and classification characteristics. The influence of disruption of the rate structure on 39 decisions involving reduced back-haul rates is summarized in Table I.

TABLE I. DECISIONS IN REDUCED BACK-HAUL RATE CASES CLASSIFIED BY RATE STRUCTURE DISRUPTION.

ALLEGATIONS OF PROTESTANTS	Number of Decisions	
	Granted	Denied
Total	8	31
Disruption charged	3	10
Sole factor	1 ^a	1
Additional factors	2	9
Disruption not charged	5 ^b	21 ^b

^a One case involved increased rates in *Cotton Clothing and Underwear in the South*, 10 M.C.C. 691.

^b One case involved increased rates, some of which were granted and some denied, *Classes and Commodities in the Southwest*, 8 M.C.C. 539.

The Commission's third point is the fear that truck rates may be reduced to out-of-pocket cost in both directions because the traffic of each carrier may preponderate in the direction opposite to that of the competitors. In only one I.&S. decision¹⁰ has the I.C.C. explicitly noted that the anticipated back-haul traffic of respondent moved in the same direction as the principal movement of all other carriers. This was between the Twin Cities and Webster, South Dakota. Even here respondent offered a less frequent service so he was not a vigorous competitor. However, it appears in another decision¹¹ that respondent transports chiefly livestock to market and seeks back-haul traffic of certain farm supplies. A number of carriers haul farm products primarily, but their equipment cannot handle all farm

¹⁰ *Hanson Transfer Commodities to Webster, S.Dak.*, 22 M.C.C. 181.

¹¹ *George Taubert, Commodities to Holland, Minn.*, 24 M.C.C. 373.

supplies. For most motor common carriers, the principal movement is outbound from cities to small towns and villages; hence, no compensating back hauls. Again, a number of decisions have indicated that traffic from Chicago to Denver is heavier than in the reverse direction.¹² In a case involving proposed reduction from Minot, N.D., to the Twin Cities, respondent truckers asserted that:

"All members of the Northwest Tariff Bureau operating between the points in question have the same problem, that is, the back-haul is in an eastbound direction. We have been unable to locate any other motor carriers who have a situation that is just the reverse from that just pointed out. The natural thought would be that a livestock carrier might have such an operation. It is our belief and we believe that such belief is correct that the livestock moving out of Minot territory moves into West Fargo and carriers handling it into West Fargo do not operate into the Twin Cities." (*Onions and Potatoes, North Dakota to Twin Cities*, 26 M.C.C. 153, September 1940, Brief of Northwest Tariff Bureau, Respondent, p. 9.)

But the protesting rails noted that their traffic was preponderantly in the opposite direction and that they would cut under the main-haul rates of highway carriers upon which the latter are dependent:

"As we have shown the preponderance of rail traffic between Minot and the Twin Cities is eastbound and the truck lines are heavily dependent upon the westbound haul. It would seem that in the instant case the rail lines would be in an excellent position to turn the 'added traffic' theory against the respondents to the prejudice of their interests and the demoralization of the existing rate structure." (*Ibid.* Protestants' Brief, p. 13.)

¹² While one case involves an origin 45 miles off a main highway, it suggests that the back-haul movement to Denver is opposite to the back-haul traffic of other carriers.

The Commission, in the frequently-quoted *Refrigerator Materials Case*, observed that motor carriers generally maintained lower rates northbound than southbound. For instance, respondent and protestant quoted a rate on fruits and vegetables of 50 cents from Memphis to St. Louis and 70 cents southbound. The rates on drugs, chemicals and medicines were 61 cents northbound and 72 cents southbound between these two points. Again, the Commission noted in a later decision that the northbound traffic of another respondent was 42 per cent of its southbound traffic.

"Under these conditions, the northbound rates of the motor carriers have generally been made on a level lower than the southbound rates. The same situation prevails, in large measure, in the rate structures of the rail carriers."¹³

Respondent's average revenue per truck-mile for all traffic from St. Louis to Memphis, Tenn., was 24.2 cents and 5.8 cents northbound. In another case the average revenue per truck-mile for respondent for the first 9 months of 1938 was 20 cents southbound from Louisville to Middlesboro, Ky., and 2.1 cents in the opposite direction.¹⁴ Based on respondents' experience of operating, fully loaded, 20,000 pounds from Chicago to Denver (1,047 miles), respondent A received 27 cents per truck-mile, B received 28 cents, and C received 24 cents. Based on the approximate experience of 18,000 pounds eastbound, the rates yielded revenues of only 16, 13, and 17 cents, respectively.¹⁵

As Investigation & Suspension cases are generally restricted to the rates of a

¹³ *Proportional Rate on Drugs—Memphis-St. Louis*, 12 M.C.C. 447 (450).

¹⁴ *Leather from Middlesboro, Ky., to Chicago, Ill.*, 18 M.C. 265.

¹⁵ *Western Territory Commodity Rates and Ratings*, 71 M.C.C. 511.

few respondents over given routes, the records do not develop full analyses of the direction of traffic of all operators. But most evidence points to traffic moving in greater volume persistently in one direction. Various decisions involving different respondents suggest that substantially more traffic moves south and southwest from Chicago and from St. Louis than in the opposite direction. A greater volume of tonnage is transported from Chicago to Wisconsin and Minnesota than in the reverse direction. The rail carriers which haul most of the traffic seldom have balanced movements. Likewise, steamship lines seldom have balanced movements.

Even where the total tonnage may be equal in both directions, one direction may be considered a back-haul because the low-grade commodities simply would not move at rates based on average cost.

Granting the existence of excess capacity in both directions at *present rates* shared more or less by all competitors, how can such waste be eliminated other than through rate reductions? These eliminate the more inefficient capacity and firms, assuming sufficiently equal financial strength to permit survival of only the more economical firms. There need be no high correlation between efficiency and ability to survive. The remaining carriers could then, with fewer trucks, operate at capacity at rates lower than existed originally but higher than during the transitional period. Such a condition postulates ability to make frequent rate changes.

The Commission has implemented its fourth point by prohibiting trucks from cutting rates below average cost to compete with the rails unless the latter are quoting rates which fail to meet their average cost. This condition has occurred

in not more than two truck decisions. With a given cost situation, the maximum rate-determining factors for a carrier would normally be the elasticity of demand for transportation for the traffic concerned and the alternative means of transportation. The minimum rate would be the short-run marginal cost of the back-haul.

Where back-haul traffic is important to railways, there is little doubt that they would reduce their rates to meet a reduced truck rate. Rails can absorb revenue losses on a few movements more readily than a single truck operator because the operations of the former are more diverse, but not generally any more than all truck competitors combined. The rails established rates less than average cost long before truck rates came under the jurisdiction of the Commission.¹⁶

Before cutting back-haul rates, the trucker should weigh the effect of his action on rail retaliation against his estimate of the increase in his gross revenues arising from the increase in the total tonnage of the traffic in issue stimulated by the rate reduction. After allowing for competing forms of transport, demand elasticity depends upon factors beyond the control of transportation agencies. Therefore, they should establish back-haul rates calculated to maximize income over the direct cost attributable thereto. The more elastic the demand, when greater than unity, the more profitable it becomes to reduce back-haul rail and truck rates below average cost. Short-run marginal cost per unit of back-hauls is likely to re-

¹⁶ It is not within the scope of this paper to learn whether the Commission, since 1936, has permitted protested rail rate reductions to become effective when recovering less than average cost on the return haul. Hence, no conclusion can be reached with respect to a consistent rail and truck return haul rate policy.

main about constant for any amount of traffic up to the point where some segment of the transport facilities requires expansion due to the increased back-haul traffic. Beyond this point, the rate for all back-haul traffic of a given commodity depends upon maximizing aggregate income over aggregate short-run marginal cost.

As noted above, a floor to rates which is to recover full cost to every participating carrier may perpetuate idle capacity on the back-haul. The only remedy is to reduce rates.

Experience, as related in 41 Interstate Commerce Commission decisions concerned with back-haul, demonstrates that in fact there is no foundation for the fears stated by the Commission, although its argument with respect to possible disruption of the rail and truck rate structures may be theoretically sound.

In view of (1) the failure to develop at hearings or in briefs the average cost data for respondents, let alone costs di-

rectly assignable to back-haul traffic, (2) the impracticability of developing demand for transportation by type of traffic by Commission attorneys, and (3) the failure to be guided by economic principles set forth above, it would appear to be desirable public policy to permit carriers to use their on-the-ground business knowledge and judgment presumably approximating these principles in establishing back-haul rates. Protesting truck tariff bureaus possess a more extensive experience than single respondent truckers, yet this is not always applicable to a specific situation. Further, the general philosophy of tariff bureaus for higher rates is neither beneficial to shippers nor to all carriers.

By a return to the relatively free forces of competition, even though imperfect, excess capacity would tend to diminish, shippers to pay lower rates, and possibly the profits of the remaining carriers to be increased by new traffic or at least during the transitional period in which inefficient operations would tend to be eliminated.

Economics of Soil Conservation

I. Individual and Social Considerations

By E. C. WEITZELL*

THIS article will be confined to the consideration of a few of the more general and basic problems of soil conservation. The exclusion of other resources is necessary in order to eliminate the conflict in character between exhaustible and inexhaustible, and substitutable versus nonsubstitutable resources. For the purpose of this discussion, soil is considered as having no practical substitutes and as being an exhaustible resource, except that it may be utilized continuously and indefinitely under certain types of practices without material impairment of its usefulness. The latter characteristic distinguishes it from exhaustible resources of the mineral-deposit type, which are irreplaceably consumed in the process of utilization. In contrast to certain resources which may be substituted for each other, rendering one or the other obsolete, soil is assumed to have no substitute in its capacity for producing the necessities of life. Consequently, erosion and depletion of the soil represent the exhaustion of a nonsubstitutable resource. For any particular area, or for any specific number of people, the state of production technology may determine the extent to which exhaustion should be limited and, in turn, how extensively or intensively it may be necessary to utilize the soil in order to provide the desired level of consumption.

† An adaptation and revision of portions of a thesis presented to the University of Wisconsin in partial fulfillment of the requirements for the degree of Doctor of Philosophy, January, 1943. Mark M. Regan, Bureau of Agricultural Economics, made numerous criticisms in the interests of both content and clarity of this presentation.

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In general, however, there is no substitute for soil.

Character of Soil Conservation

The term *conservation* has been used to denote a variety of aims. Former definitions have included the prevention of waste,¹ the maintenance of the present level of productivity,² and the rehabilitation of a former or higher level of productivity.³ Variations in concepts have resulted from differences in the character of resources as well as variations in the goals being sought. In most instances, the thinking has been in terms of the prevention of the wasteful exploitation of physical resources or of the maintenance of physical productivity. Relatively minor attention has been given to the economic and social justification for action of this type. The objectives behind the usual concepts of conservation have been the result of a fear that the future supply of certain resources will be jeopardized by excessive consumption in the present. Hence, it is clear that basic economic and social questions are involved in the delaying of current consumption in favor of more or less indefinite future consumption.

On the contrary, it is probably astute to confine the definition of soil conservation to the concept of physical maintenance rather than to expect general ac-

¹ R. T. Ely, et al, *The Foundations of National Prosperity* (New York: Macmillan, 1923), p. 4.

² A. C. Bunce, "Time Preference and Conservation," *Journal of Farm Economics*, August, 1940, p. 536.

³ R. T. Ely, *op. cit.*, p. 5.

ceptance of a definition having economic and social implications. It may be sufficient to indicate that *soil conservation is the maintenance of a specific level of productivity for an infinite period of time*. Immediately, however, there are a number of important considerations to be made before this concept is applicable in a practical sense. For example, what level of productivity is advisable, under what conditions might this level vary, and what social and economic factors are involved?

Bunce has divided agricultural land into "fund" (soil structure) and "flow" (fertility) resources.⁴ He then characterizes conservation as the maintenance of the fund resource, irrespective of dynamic circumstances, leaving flow resources to vary according to the intensity of need for production. Abstractly, this separation may be justified, but actually there may be some difficulty in determining the point at which soil becomes a flow resource and ceases to be a fund. Organic material is a part of the soil structure and also a very important variable element contributory to fertility, particularly the carbon-nitrogen ratio. Moreover, a program of soil conservation for sloping land may have to provide for a mere check on the rate of erosion rather than for its elimination. Temporary and unusual needs for production may dictate a relaxation of protective measures for a time, during which both *fund* and *flow* resources may be adversely affected. In other words, there is reason to believe that productivity consists of a combination of soil structure and chemical elements, both of which may vary in a dynamic economy. Except in the case of very thin soils, topsoil may be created by slightly deeper plowing and the addition of or-

ganic and plant food elements. This is not an unusual practice in some parts of the country. Thus, soil as a production medium may be much less costly to rebuild than to maintain the physical structure under the stress of certain temporary circumstances.

In order to orient properly the concept of conservation in a practical sense, it is necessary to relate it to a method and level of use which can be maintained economically, assuming certain levels of demand, and to the amount of money that may be expended economically for achieving resource maintenance. Both of these determinations are necessary for the evaluation of programs designed to achieve conservation. Any such program must fit a practical management plan which will return benefits equal to or greater than the costs involved. This distinguishes *economic conservation* from *physical conservation*, wherein the cost-benefit relationship is not considered.⁵ For example, erosion of farm lands might be retarded or totally eliminated by engineering measures; but, unless all the costs of such control are economically justifiable in terms of future incomes, the result will be physical rather than economical conservation.

Hence, soil conservation implies a method or methods of land utilization which will return a maximum net income without depleting or impairing the productivity of the basic resources in the long run; and it recognizes the possible existence of virgin fertility, the maintenance of which could not be justified economically or which might not be physically possible under a particular use. It will be necessary, then, to relate soil maintenance to

⁴ A. C. Bunce, *Economics of Soil Conservation* (Ames, Iowa: Iowa State College Press, 1942), pp. 4-9.

⁵ Incidentally, it is not the highest benefit-cost ratio which is desirable, but the highest total net benefits that must guide the application of measures designed to achieve conservation.

the types of use which will tell us the amount of production or income which can be realized without exploitation. Consistent with this ideal, *income* may be defined as that production which will leave the resource in the same state of productivity at the end of any given period that characterized it at the beginning, assuming constant technological conditions.⁶ This definition portrays the theoretical aim of soil management in order to achieve conservation.

In practice, the aim should be to provide methods and conditions of efficient productive enterprise which will make full use of soil resources in the present and, at the same time, maintain the productive capacity for the future. Productivity should be constant from any given point in time, consistent with the most profitable use. The latter concept assumes that adjustments in production levels may be as necessary as dynamic economic conditions demand. There can be no static level of conservation in a commercial economy. Cost and price relationships necessitate changes in the intensity to which capital and labor may be applied to land for maintaining resources. Long-time conservation leads from a general direction to the more specific levels that may be feasible in a short period.

Soil conservation programs have varied in objectives as they have been administered by the various governmental agencies. Along with a lack of distinction between physical and economic conservation, most of the programs administered by "action" agencies have been designed to improve productivity rather than simply to maintain the prevailing level of production. This necessitates a reinvestment to the extent of past depletion or, in other words, to the extent that the costs of pre-

venting erosion and depletion have been passed on from the past to the present. Consequently, the job takes on the character of reclamation or rejuvenation of depleted soils which have been exploited, misused, and unprotected during critical periods. In such cases the costs may be particularly burdensome to present property owners—the result of an accumulation of costs over a period of years.

In reestablishing a former level of productivity, it must be determined to what extent it is desirable to reclaim land, and also the level of productivity that can be economically reestablished. The degree of future demand for agricultural and forest productivity must guide the investment for reclaiming and conserving soil. Furthermore, the economic capacity of any soil type under a specific use must be considered in order to avoid excessive application of capital beyond the point of economical absorption and use.

The character of soil under different types of cover, and under the several uses, bears a direct relationship to the level of fertility that can be maintained to advantage. For example, under virgin forest cover the comparatively high organic and moisture content of the soil results in a rather high fertility ratio. This high level of fertility usually can be maintained as long as the forest use is unchanged. When the land is cleared and the use changed to pasture, a new and lower fertility balance eventually will be reached because the new cover and increased exposure are not conducive to the high virgin fertility balance. A further intensification of use, let us say crop production, would reduce the fertility balance still further under normal conditions. Temporarily, the new use would have an abnormal advantage in having a residual of the relatively high fertility of the former use. But it would be extremely costly to maintain the fer-

⁶J. R. Hicks, *Value and Capital* (New York: Oxford Press, 1939), p. 176.

tility level of some virgin land devoted continuously to crop production after the factors that had contributed to high fertility have been removed. Consequently, efforts to achieve conservation must be based on a level of fertility consistent with the use to which the land is to be put and, in turn, consistent with the economic capability of the soil.⁷

Cost of Conservation

There are a number of familiar costs in connection with the physical maintenance of any type of property over a period of time. Usually these costs are not paid, or the property maintained, unless the expected future income is sufficiently high to justify it. This is precisely the economic problem in soil conservation. To conserve productivity there must be certain amendments to soil fertility to compensate for the depletion which normally occurs with use. In addition, certain lands need artificial protection to prevent depreciation when utilized for types of production which do not provide natural protection from the elements. *The expenditure which would be necessary to maintain a certain level of economical productivity is the cost of conservation.* This should be considered a fixed cost, chargeable to annual gross income and payable to the soil in the form of amendments and protection.

As a basis for such action, there must be an objective or reason for delaying the consumption of the resources, the future value of which is greater than the immediate opportunity value plus the waiting costs of maintenance. The only reason for conserving certain natural resources is the fact that they are irrepro-

ducible or irreplaceable, and indispensable to human welfare in the future.⁸ These characteristics must supply the future value sufficiently to justify continuous investment in land, assuming that soil always has a value for some level of production intensity.

Exploitation will and should occur when expected future values will not justify the costs of conservation. For example, let it be assumed that the future value of coal is very low owing to certain technological developments, such as the substitution of other fuels and products for coal. In such case, the existing supply of coal had better be consumed at present while it is of value rather than held until its value is negligible.

The case of the farmer and the soil is somewhat different. There is no plausible substitute for soil, although various technological developments and changes in demand may alter the area needed for a specific use. In case consumption demand is low and the state of the arts highly developed, production will assume an extensive character, greater quantities of land being combined with relatively fewer units of labor and capital. On the other hand, if the man-land ratio (demand) is relatively high, land will be utilized in smaller quantities per unit of labor and capital. The fixity of land as space sets definite limits on the volume of soil productivity that can be achieved at any specific level of technological development. This produces a scarcity which, along with a continuous demand for land to a greater or lesser degree, provides future value. Soil is a resource that will always bear greater or lesser value, whether population is sparse or dense at any specific time. Production from the land is characterized by critical periods of extreme

⁷ C. C. Nikiforoff, "Soil Organic Matter and Soil Humus," *Soils and Men* (Washington, D.C.: U.S. Dept. of Agriculture Yearbook, 1938), pp. 932-939.

⁸ Aesthetic values may be desirable, although not indispensable.

demand at times when it is very important that soil resources be in a highly productive state. This, together with the constant human aim for greater consumption, creates future values which justify conservation at some level of intensity. On the basic assumption that there is no substitute for soil, it never will be possible for the cost-benefit relationship to allow zero soil productivity.⁹ Even the destruction of individual tracts would not be allowable because of the joint cost of erosion and down-stream siltation, floods, and water tables. The lowest use might be natural vegetation, facilitated by protection and probably some plantings. Yet this could not be termed zero productivity in light of the many indirect benefits and the slight cost of protection. Some level of conservation will be possible and feasible under either extensive or intensive production, depending on demand for consumption goods, under an optimum distribution of all resources, and if production organization is efficiently operated. It is a maldistribution of resources and production inefficiency that leads to difficulty in holding to economical behavior in connection with the utilization of land resources.

Private Enterprise and Conservation

The role of the farmer as private entrepreneur and consumer bears important implications relative to the problem of soil conservation under fee simple private property. He must be the conserva-

tor to the extent that public control measures are lacking. We shall be interested here in the problems encountered by individuals and the apparent conflicts in purpose that arise in connection with soil utilization.

The farmer who is not subject to external influences and control, other than purely competitive forces, and who is following his best interests as an entrepreneur, prefers to maintain his resources and maximize his income over a period of time rather than consume his holdings in a relatively short time and be in want for a longer period. But there may be a limit to the longevity of his interest. The conservationist, on the other hand, is not interested merely in maximizing income for his own lifetime, but looks forward to a continuation of socially necessary production. Hence, entrepreneurship, to be consistent with the social interest, is not a matter of merely maximizing income over the span of one or more generations, but one of maximizing the *income of society in perpetuity*.

If it is apparent that the present value of the potential future return will be sufficient to repay the expense, as well as to provide earnings comparable to alternative investments involving similar risks, the remoteness of the return compared with the length of human life will not be a serious discouragement to private investments in maintaining natural resources. Theoretically, "at any given time the investment will have a capital value which may be turned into cash." The chief reason why private investors are reluctant to make investments of this type is that the current value of the expected future return is too small to justify the necessary expense and risk.¹⁰

⁹It is possible that a small tract of land might be so disadvantageously located or, for other special reasons, be so unprofitable to use except by exploitative methods, that no potential cost-price relationship would permit conservation. A small, remote island in the sea, for example, might produce profitably for a short time under exploitative practices. Such a very special case would closely resemble the mining of subsurface resources. Joint benefits and future value would preclude practically all land from such a classification.

¹⁰L. C. Gray, "The Economic Possibilities of Conservation," *Quarterly Journal of Economics*, May, 1913, p. 513.

In addition to the more or less objective factors which affect the evaluations made by all rational entrepreneurs, there are certain subjective considerations which alter the decisions of some operators. Certain peoples feel that their future is so deeply rooted in the land that they do not consider alternative types of investment. A creed of living based on the continuous productivity of land leads them to sacrifice possible current consumption in favor of the welfare of those who will live by their faith (dependent on land) in the future. Following this fervent faith in land, they sometimes make extreme sacrifices of labor and consumption in order to rehabilitate poor land. They follow an extreme idealism which leads them to value a future security in the land more than present labor and possible consumption which might be gained from some other source.¹¹

This is not to confuse the superior abilities of some operators with the concept of idealism. Superior management and initiative make it possible for some farmers to realize high returns, even from comparatively low-quality land. The better managers realize that their greatest net gain is possible by intensifying the expenditure of personal time and labor for maintaining maximum production. Time and labor are the factors of production which, in lieu of better alternative opportunities, may be intensively added to land without increasing monetary investment.

In general, the American people depend on immediate consumption resulting from cost-price relationships. Starting with early settlement, they have had two alternatives: (1) to follow the self-sufficing agrarian methods of colonial agriculture, or (2) to progress with the remainder of the economy toward a highly technical

commercial agriculture and a higher level of consumption. To the extent that these people remain on farms, they are choosing the latter principally because of the comparatively greater purchasing power of their labor in terms of consumable commodities. Farmers are demanding that they be able to compete with industrial workers in terms of purchasing power. The customs, institutions, and folkways of basically agrarian peoples have given way to the methods and institutions of an aggressive commercial agriculture. The only feasible way in which to promote conservation is to show the farmers that it pays to follow the methods of management which give them an acceptable position in the realm of commercial (price) farming.¹² It is society's responsibility to make the necessary institutional adjustments which will permit agriculture to compete in the realm of price relationships. This brings us back to our point of departure—the entrepreneur and his problem of conservation.

Factors Affecting Individual Action

The environment and habits of people have a noticeable effect on the manner in which resources are utilized and the degree of acceptance of new ideas. Practices

¹² The emotional and sentimental theories of certain land philosophers take on realism only to the extent that people are willing to sacrifice opportunity costs, or to the extent that they conform to the demands of a commercial economy. In terms of social institutions, there is the possibility of teaching a level of living involving less consumption, or certain ideals with respect to resource maintenance which may be effective in lowering the demands for income. Through this process it may be possible to achieve the conservation of resources which may be submarginal in a commercial economy of higher consumption habits. The applicability of this technique is probably extremely limited. In general, and as agriculture becomes more thoroughly commercialized, farmers will find it necessary to compete with the industrial economy for labor and other factors. It will then be essential to conservation that the efficiency of operation be on a par with industry.

¹¹ Angus McDonald, "My Father Was a Soil Builder," *Harpers*, December, 1940, pp. 42-52.

that have been followed by several generations are often reluctantly discarded for more advanced methods. Likewise, an industrially-minded people often fail to appreciate land resources as much as those who have depended almost entirely on the land for many generations. Agricultural people who look forward indefinitely to land estates are quick to see the importance of conservation. On the other hand, a people reared in a young and expanding economy, not mindful of the distant future and the cost-benefit relationship, are prone to exploit resources, hoping to move on to other sources of income. The ideal of exploiting the land and investing in commercial enterprises must be changed to the ideal of investing and re-investing in land for the assurance of future income, if conservation is to be a reality. This is not in contradiction to the stand taken in previous statements; it is merely a criterion which serves as a basis for good land-stewardship—recognizing the importance of price and the necessity of creating a healthy agriculture as a part of the whole economy.

The factor that must be altered in favor of conservation is that of exploitation or unnecessary immediate resource consumption. It is generally true that soil resources may be (and have been) utilized in a manner that will permit greater net income for a short period than can be achieved with conservation. It is accomplished by neglecting the fixed costs of maintenance. The "plant" is allowed to depreciate in favor of consumption or land investment is liquidated in favor of investments of other types insofar as the individual does not assume all the social costs involved. In this connection the entrepreneur is guided by two forces: (1) ignorance of the future value of agricultural production; or (2) purely economic motives based on earning power. The first

can be disposed of with the suggestion that education and the strengthening of ideals will be necessary to counteract present ignorance and poor management. Antiquated ideals and fallacious customs in a democracy can be eliminated only by persistent education and demonstration to the contrary.

The second point is more subtle. The preference of one type of investment to another by the entrepreneur is based on expected earnings. If the costs of maintaining one type of investment over a long period are high in relation to expected earning power, it will be liquidated in favor of more lucrative alternatives. Thus, the *interest rate* enters the picture in the form of the rate of discount by which future values are determined. The uncertainty and risk characterizing the several types of investment will vary expectations and discount rates; consequently, if discount rates and the cost of maintenance are high for a particular resource, it is likely to be exploited in favor of another. Low discount rates and relatively high expected earning power will encourage resource maintenance. Such action is a partial basis for the interest rate by which investments in land will be judged to be, or not to be, economically justified. The allocation of resources to the position of greatest earning power is in line with the best interests of the individual and of society as a whole. The misleading factors in this respect are ignorance, poor estimates of future earning power, and institutional maladjustments which handicap the comparative earning ability of certain resources—particularly land. For example, farmers may misjudge the future of agriculture in favor of the stock market which will lead them to disinvest in land and transfer their risk to the market, or they may over-estimate the value of land which causes them to make exces-

sive capitalizations. In order to amortize debt and to meet other responsibilities, disinvestment may be necessary.¹³ Likewise, excessive interest rates which exceed net earnings may force liquidation of resources (by neglect of upkeep costs) in order to meet contractual obligations. Customary interest rates, not based on current earning power, represent a frequent burden to agricultural lands.

A peculiar type of erroneous valuation has characterized agricultural lands in areas possessing potential mineral wealth. Investors have capitalized expected returns which fail to materialize, making the net income from agriculture insufficient to carry the excessive load. Soil resources are exploited in order to meet the carrying costs. Aesthetic values and overestimates of locational values often lead farmers to overbid land values, particularly since farm homes are combined with the business investment. Impractical and expensive buildings and other types of improvements often carry burdensome investment which can be amortized only by disinvesting the land of its productive value. Premature urban and industrial influences and excessive capitalization in small communities may result in generally higher land values than can be supported by the forthcoming income. Public assessments, taxes and other carrying costs which are levied after private capitalization has been contracted, often burden farming enterprises with fixed costs which were not anticipated. Consequently, more than net income is taken from the land in an effort to retain the property. These errors and influences must be guarded against if conservation of soil resources is to be feasible under our system of private property in land.

¹³R. Schickele, "Economic Implications of Erosion Control in the Corn Belt," *Journal of Farm Economics*, August, 1935, pp. 444-446.

Certain important forces which deter conservation are beyond the control of individuals and even groups of individuals. Unusual weather conditions and crop failures that cannot be forecast may induce exploitation. Lengthy drought periods and rainy seasons and other factors contributory to low incomes may result in disinvestment in order to maintain families and to meet current obligations. Similarly, inflexibilities in the price system and maldistribution of resources may force private entrepreneurs to exploit resources in order to compete for a time.

Time Preference and Conservation

Conservation theorists and land philosophers have been prone to explain exploitation, or the lack of conservation, as a "time preference" on the part of individuals to consume or disinvest, rather than to conserve for a more or less uncertain future.¹⁴ Many individuals, voluntarily or by force of circumstances, prefer to consume their resources rather than to hold them for a more or less unforeseeable future. Such actions, however, are based on forces which are explainable within the framework of economic behavior. The problem is one of explaining the causes for such activities instead of being satisfied with an unfounded subjective explanation of consumptive exploitation which is useless in itself.¹⁵

Time preference is not an unexplainable subjective human trait. It is a result of the same forces which give rise to the interest rate.¹⁶ The factors which lead the individual to prefer present goods over future goods or vice versa, and those

¹⁴S. von C. Wantrup, "Economic Aspects of Land Conservation," *Journal of Farm Economics*, 1938, p. 471.

¹⁵A. C. Bunce, *op. cit.*, p. 542.

¹⁶F. A. Fetter, *Economic Principles* (New York: Century, 1926), p. 254.

which lead society to do likewise to a varying extent, represent the source of discount or primary interest rates.¹⁷ Much of the argument concerning the character of time preference would be unnecessary if the debaters were to recognize this fact.

For the *individual*, there are four basic causes for present time preference: (1) urgent needs (subsistence) in the present, irrespective of what the future may hold; (2) uncertainty and distrust of the future and the lack of acceptable productivity; (3) the finity of human life; and (4) the careless or prodigal desire to exploit. All are based on the desire to consume in the present and, in terms of soil conservation, the possibility of passing the costs on to the future in the form of damaged land. Thus, future owners or society must reinvest in and rehabilitate lands depleted in the past if these lands are to be used in the most effective manner in the future.

In the *first* instance, time preference as a result of subsistence pressure is actually a lack of any alternative course to follow. The demand for present consumption is so pressing that the future is discounted at 100 per cent. Future productivity to a starving individual means nothing if he does not survive. The inaccessibility to greater amounts of consumption goods forces exploitation of meager resources even though the individual may realize that next year his production will be less as a result of this year's depletion. He takes a chance that the future may be brighter. This would not be so vitally true if all consumers were not dependent on cash income. The American farmer, however, has come to depend on purchasing a large portion of his total consumption and this involves him in the commercial system. He cannot produce auto-

mobiles and gasoline from the soil. The lack of techniques incurs dependence on industry for clothing and certain other necessities and he has learned to require coffee, tobacco, and the like, for which his soil is not adapted or likely to be subordinated. Instead of applying those conservation measures that require only available labor and time, the interest of the typical subsistence farmer may be in seeking a source of immediate nonfarm cash income. The serious feature is that after the soil resources reach an acute stage of depletion the possibilities of rehabilitation appear hopeless to many individuals. They discount fully their future possibilities on the land and look to other sources for a livelihood, perhaps preferring to be idle rather than to labor toward rebuilding the land.

A great many people find themselves seeking cheap land for a resting place during depression periods. They are forced to stave off starvation by shifting from place to place and exploiting the resources where possible. Inertia and the lack of desire to settle permanently on the land leads some to be careless about the care of the soil and other resources for future production. Here again, it is apparent that the individual may project his operations on a calculation that does not include social costs. Individuals having low managerial ability, likewise, often seek poor land in search of livelihood. In fact, they may be driven to low-quality resources by the higher bidding of more capable farmers.

The problem of gaining a subsistence by exploiting lands when no alternative opportunities are available is practically a time requisite rather than a preference. Under the circumstances, many people of this type know no other way of life. They do not possess the thrift and techniques requisite to agriculture on non-commer-

¹⁷ E. V. Bohm-Bawerk, *The Positive Theory of Capital* (New York: Stechert, 1930), pp. 237-248.

cial lands. In other words, it is not impossible to farm steep, poor land and at the same time to conserve resources. It has been indicated in previous pages that frugal, ingenious peoples have been able to gain a more or less satisfactory subsistence from low-quality land in preference to other types of employment which might have been more lucrative. By intensive labor they have conserved and even improved the soil, paying the costs with labor and thrifty management.¹⁸ On the other hand, those who do not accept their current dependence on the land as permanent do discount the future fully when they are exploiting.

The *second* basis for current preference is largely a matter of future expectation and the decision to consume more than necessary in the present, inasmuch as the future holds many uncertainties. For devious causes wealth may be lost; hence, "a bird in the hand is worth two in the bush." Here we have a good example of the cause for interest. On the other hand, holders of wealth may forego their desire to live abundantly in the present if interest on loaned goods is sufficient to overcome the desire for current consumption. It is here that the justification for conservation arises. *Present* time preference is opposed to conservation, but *future* time preference is consistent with the maintenance of productivity. In the first instance, the demand for a current supply of goods is dominant; in the second, the productivity of unconsumed resources

over time justifies the delay of present consumption. In other words, after the essentials of life are satisfied, additional consumption may be foregone in favor of continuous productivity at a certain level, or in favor of future values which are greater than those of the present.

The *third* reason for current preference is closely related to the second, but deserves emphasis in a society of fee simple ownership in land. The definity of human life places a very real limit on the extent to which the individual may be interested in the distant future. From the standpoint of soil depletion, this factor does not appear of great importance. It usually is conceded that soil deterioration reacts so quickly on production that any net gain to an individual following this course would depend on the depletion occurring only a few years preceding death. On the other hand, with a relatively large proportion of farmers past 55 years of age, this problem has been significant in attempts to encourage reinvestment for rehabilitating resources.

The *fourth* time preference factor provides the greatest reason for social control. Prodigal consumers are merely careless and extravagant. They worry not about the future, nor do they give great consideration to the current values of life. It is not difficult to find persons who prefer to liquidate their investment in land by "mining" it, living in plenty for a relatively short period, rather than maximizing the total income that might be produced over an indefinite period. This type of exploiter may have an interest in production for a certain number of years—perhaps he may confine his endeavors to consuming everything within the short span of one generation. Such operators, many farmers among them, are particularly prevalent in the development of exhaustible mineral resources. Social costs,

¹⁸ It cannot be said that people who are dependent on relatively poor land, gaining a living by hard labor and frugality, actually live on a lower social plane. Their mode of life may not be obnoxious from any standpoint. They merely consume less of the industrial goods, including many luxuries that have grown to be customary in American society. Underconsumption is not advanced as desirable as long as better alternatives are available but it is one way of surviving and many peoples of the world have been forced to it.

and portions of the private costs, are passed on to the future, while they ignore the future capital value of the basic resource. In such manner, potential future productivity of the former resource is destroyed or delayed for long periods because of the lack of interest in the future. There is only one effective way to combat these types of exploitation and that is by public control.

Objections to the concept of time preference as an obstacle to conservation have been advanced on the basis that, instead of consuming capital goods, an owner is free to obtain credit, using the conserved portion of the resources as security. Thus, both consumption and soil productivity could be maintained until such time as sufficient income from the resource is available to repay the loan. There are a number of reasons why this is not a practical objection. (a) The subsistence farmer is not in the money market and lacks the certainty of expectation requisite to credit. (b) Credit institutions are not in a position to loan against small annual improvements without discounting heavily the cost of conservation for loan purposes. (c) When farmers are in the position of being forced to decide "whether to eat their seed or not," their credit status is not likely to be given much recognition. The inflexibility of certain elements of the economy, plus the individuality of human judgment, give rise to a time preference, irrespective of what may actually be possible if all the facts were known and recognized. Even with credit available, many people refuse to accept additional responsibilities extending into the uncertain future. The individual, as well as society, is forced to discount the future when deciding the extent to which present goods are to be foregone in favor of future goods.

Society and Conservation

It is of little value merely to recognize that *time preference* may affect the decisions of the individual and society regarding the relationship of present goods to expected future goods. Unfortunately, the promiscuous use of this concept has resulted in such generalizations as "unlike the Nation, many farmers cannot afford to save the soil"¹⁹ believing the only alternative to be public subsidy. Rather, the question is, why are farmers forced to follow an apparent time preference motive which may be contrary to the best long-time interests of both individuals and society? The solution is to reconcile the interest of individuals and of society in making expenditures for conserving soil insofar as this is possible.

In the long period, the interest of the individual as a segment of a democratic society is identical with that of society as a whole. This assumes that the individual is a "continuous" being and that the interests of the individual are those of society. However, it has been shown that this concept is at least partially unreal under actual circumstances because of the definiteness of human life and the resulting tendency for individuals to ignore long-time social welfare. Accordingly, individual consumption and investment may be based on the desires of a single generation and the welfare of future generations may be fully discounted. Society, however, may place a high value on continuous or future productivity.

Social welfare is characterized by two types of aims: (1) the general interest in current, or short-time, welfare; and (2) appropriate provision for the well-being of posterity. Society has the responsi-

¹⁹ B. W. Allin, *Soil Conservation—Its Place in National Agricultural Policy*, Agricultural Adjustment Administration, 1936, p. 12.

bility of providing the individual with the necessary conditions which make it feasible for him to conserve for future generations. The government should strive to eliminate the handicaps of private enterprise by seeking an optimum distribution of resources and disallowing one element of the economy to be subordinated to the oligopolistic superiority of the other elements. Trading relationships must be improved. Adjustment must be made in the man-land ratio in order to provide those people who are dependent on the land with equality of advantage. Good land that is used rather extensively and ineffectively should be made accessible to those who have been forced to depend on land relatively unsuited to agricultural production. Controls on tenure may be essential for insuring the best interest of those people who till the soil. In addition, a very important aspect of optimum resource distribution is the proper adjustment between the proportions of people dependent on agriculture and on industry.

In this connection the defeatist attitude of accepting a high degree of low-income self-sufficiency is undesirable. The industrial resources are apparently adequate to permit a high volume of consumption providing the distribution channels are opened. At the same time, agriculture should continue developing commercially to the point where all land can be put to the most desirable use. To go backward to an agrarian self-sufficiency would be to deny the people desirable consumption which would otherwise be "wasted." The expansion of consumption involves an adjustment between resources and people in order to place every worker in the most lucrative earning position. Monopolistically controlled consumption must be eliminated in favor of a production volume which will support full employment for both industry and agriculture. Instead

of worrying about the expenditures for resource rehabilitation and maintenance in view of a trend toward a stationary population, the real problem is to adjust to an optimum utilization of *all* resources, with an expanded production, under income levels that encourage conservation.

Insofar as private enterprise is inclined to ignore desirable conservation, public controls must be adopted. Public funds should not be spent for rehabilitating and conserving privately owned resources, the owners of which might proceed to exploit in a selfish and prodigal manner, ignoring the social costs and passing on certain private costs. Public expenditures should be made in the interests of continuous human welfare. Democratic planning and education will aid this cause, but after the many years of private land exploitation as a precedent, control measures undoubtedly will be necessary in some cases for achieving certain aims. Continual delay in effecting such controls permits accelerated destruction and waste. This circumstance is particularly characteristic of forest conservation at the present time.

However, an important reservation should be recognized. In the interests of the welfare of private property and enterprise, the application of police power must be consistent with desirable economic motives. Any program of rehabilitation and maintenance must constitute a practical contribution to private enterprise if operators are to accept them. For example, before compulsory land use regulations under Soil Conservation Districts are enforced on farm operators it is incumbent on the enforcement agency to ascertain that the specific measures are economically feasible in terms of all farm units to which they are to be applied. Otherwise, such compulsion, approved by a majority of 60 or 65 per cent, might be confiscatory

and in violation of the property rights of a minority. The economical practice of particular measures might be impossible and beyond the control of some owners under existing circumstances. Hence, adjustments heretofore discussed may be prerequisite to the application of compulsory control measures.

Social interest in soil conservation includes another feature which often is not directly apparent to individuals. As a result of the joint dependence of resources, the problem of soil erosion is also a problem of stream, reservoir, and dam siltation; flood control and the maintenance of water levels; wildlife and forest depletion. Consequently, although a particular individual may be interested only in a single resource, society should compel a cognizance of the general problem which affects many people now and in the future. Here again, the individual producer is merely passing on the costs for a time if he allows erosion. Consequently, society may find it desirable to subsidize private interests for damage incurred in previous periods in an effort to reconcile private and public interests in resource conservation.

Public Expenditures for Conservation

It has been indicated that private entrepreneurs will find expenditures for conservation feasible if "the present value of the marginal unit of impairment (return), either of the future product or of the use bearer itself, just equals (or exceeds) the cost of prevention or restoration."²⁰ Present value is dependent on the rate of discount applied to the future value of the product.

The same principle applies to similar expenditures by society. The question arises whether the discount rate of society is the same as that of an individual entrepreneur. Wantrup,²¹ Englund,²² and others have recognized a rate of time preference for public conservation which may be much lower than for private investors. Private investors usually demand a higher rate of interest on long-term bonds, with a high degree of risk, than is true of short-term investments. They desire to have a degree of liquidity along with the added safety of the more or less foreseeable future. Englund also questions the commensurability of long-term future values in terms of a compound rate of interest. He maintains that almost any rate of interest would be prohibitive for evaluating long-time investments for safeguarding the future. Bunce criticizes this point by saying that there can be no difference between social and private time preference, and hence no difference between the interest rates applicable to investments by individuals and society, because the interest rate is a matter of alternative earning power. He contends that investments for ensuring the future supply of a specific resource must be evaluated in terms of the interest rate that the same amount of money invested elsewhere might earn.²³ Of course, the individual may not be concerned about whence his income is derived, and will invest where his estimated earnings will be greatest. On the other hand, Bunce fails to recognize that society may be concerned about maintaining the supply of a resource which is nonsubstitutable and indispensable to human welfare. In this case there are no alternatives. The problem is reduced,

²⁰ L. C. Gray and M. Regan, *Needed Points of Development and Reorientation in Land Economic Theory*, *op. cit.*, p. 43.

²¹ S. von C. Wantrup, *op. cit.*, p. 462.

²² Eric Englund, "What Price Conservation," *Land Policy Review*, Vol. III (2), 1940, p. 1.

²³ A. C. Bunce, *op. cit.*, p. 540.

then, to a determination of whether the value of the resource at some future time will be similar to current market value or a greater value. More specifically, society might place a higher value on a resource in the future and discount it at a relatively high rate, or assume future value to be identical with present value and the discount rate would be zero. Depending on the relationships of assumed future value and the interest rate in the first instance, the result might be the same in both cases.²⁴

It is the contrast in objectives that may differentiate the individual rate of time preference from that of society and render it desirable for society to evaluate present expenditures for future benefits in terms of a lower rate of interest than is feasible for private investors seeking the most profitable alternative. This point is apropos of the problem of soil conservation to the extent that the individual might have to sacrifice opportunity costs in order to maintain productivity because of (a) economic maladjustment and (b) the variation in objectives. Assuming adjustment in both earning alternatives and objectives, the problem of fertility maintenance would be identical for the private entrepreneur and society. In other words, a sacrifice of interest would not be necessary inasmuch as land may be used continuously and yet retain its present value for future production.

It is suggested that public investments for conservation be evaluated in terms of "social and cultural qualities which the society aspires to achieve and main-

tain."²⁵ This is rather indefinite, however, and leaves the administrator without any guide for evaluating future returns. Other writers have disposed of this point by turning it over to the political scientist for evaluation in terms very similar to those expressed above.²⁶ A practical evaluation of proposed public expenditures cannot be so indefinite. There must be some method for expressing the desirability of investments in both quantitative and qualitative terms.

In an attempt to solve the problems of determining what interest rate is satisfactory for evaluating social investments, it might be suggested that available funds be allocated according to the most urgent needs. Since there are definite limitations on available manpower, machines, and other resources, investments in conservation might be directed in a manner similar to the procedure followed when investing for war. The need is urgent and all available resources are placed at the disposal of the war effort without evaluation on the basis of future time preference. In fact, the future is totally discounted in favor of the present exigency. This concept also lacks tangible standards by which to judge the desirability of certain expenditures, particularly when alternative possibilities prevail. In times when unemployment of labor and money press the public to spend for resource rehabilitation in order to achieve a degree of prosperity, this procedure provides no tangible basis upon which to judge the urgency of the need for any specific type of work. Furthermore, no cognizance is given the fact that public funds are not merely "available" for the disposal of government officials. Public funds are *saved* only at the command of adequate compensation for delayed consumption.

²⁴ Although Dr. Bunce apparently recognizes this fact at one place in his recent book (A. C. Bunce, *op. cit.*, p. 19), he seeks to disprove the entire concept of time preference at a later point. As Salter has pointed out in a review of this treatise (February, 1943, this *Journal*), the author disposes of time preference in no uncertain terms but unconsciously permits it to return by the "back door" (*ibid.*, Chap. VIII).

²⁵ R. T. Ely, *et al.*, *op. cit.*, pp. 36-37.

²⁶ Eric Englund, *op. cit.*, p. 2.

Following the idea of urgent or priority investments a step further, Professor Dobb has suggested a possible procedure.²⁷ Although his concept was applied to the allocation of funds for industrial investment, it might be adapted to the development of policy for expending public funds for achieving conservation. He assumes that sufficient data will be available for computing *net productivity* (including depreciation, obsolescence, and maintenance costs—but excluding any charge for interest on initial or construction costs) *as a ratio to initial capital investment*. After such a ratio is calculated for all investment proposals, the several possible projects would be arrayed according to the comparative size of the net productivity ratio. Thus, priority ratings would be given to all proposed expenditures. As a specific type of work is completed, the net productivity ratio would fall, and the allocation of funds for rehabilitating or conserving other types of resources would achieve priority status, and so on through the list.

Here again, funds are not merely available for allocating to priority expenditures regardless of the absolute size of the net productivity to initial investment ratio. The annual net productivity ratio must equal the earnings necessary to encourage savings, since this is the source of all public funds except those taken in the form of involuntary public assessments. In addition, there must be

adequate justification for exacting from present consumption in favor of the future. The future market for the good to be maintained must be estimated as a basis for justifying a social interest in taking from the present for the future. As long as idle capital is available for this type of investment, the rate may not need to be high if the risk is low, but unless the future is fairly certain, the interest rate required to obtain capital may be relatively high.

While it appears feasible that society may have a lower time preference (interest rate) than individuals who operate over a relatively short period during which alternative earnings are available, it is necessary that the principles of economic activity be recognized. To this extent the interest rate (discount of future over present) is the only existing tool by which to measure benefits versus costs over time. Whether the procedure is to compute benefits, using interest or discount as a cost, or to compute net productivity—initial investment ratios—is a matter of determining the best technique to be followed. The fact remains that there must be some tangible measure of the desirability of expenditures for rehabilitating and maintaining resources. The rate of discount may necessarily vary with each type of investment, thereby supplying the priority ratings essential to budget allocations. In any instance, there must be some restraint to the possibility that enthusiastic planners may go to the extreme and waste public funds by "spending a million dollars to maintain land resources worth fifty dollars."

²⁷ M. H. Dobb, "Savings and Investment in a Socialist Economy," *The Economic Journal* (London: 196), December, 1939, pp. 723-726.

Urban Land Department

II. Yorkville, American Community and Melting Pot†

TO the present-day New Yorker, Yorkville—like Chinatown, Harlem, the Bowery, and Greenwich Village—is just another quaint “night-out eating place.” Its Bavarian pot roast and singing short-knickered Alpine waiters arouse nostalgic memories for the German-Austrian-Czech first-generation immigrant who lives in the neighborhood as well as provide local color to the visitor. On its standard rectangular streets, characteristic of most of Manhattan, are found the residences of the well-to-do and the tenements of the poor in fairly close proximity. But, just as an inventory of a house reveals little of the spirit of the household, so an inventory of Yorkville's population suggests but does not disclose the currents of energy that have made a large part of this section of New York a highly-focused and a dramatic spot in the national and in the international scene.

Yorkville is, of course, more than the breeding place of the German-American Bund, although its Nazi population has brought it into the spotlight in the last few years. The tensions of the last decade have shown more clearly than before the many nationalities other than German and/or Nazi who have homes in the five-story tenement rows east of Third Avenue. The humor of the Irish, the conviviality of the Italians, the soft speech of the Austrians, and the calm realism of the expatriated Czechs—all of these contribute to the atmosphere of Yorkville. Its variant cultures, old and new,

continue to attract the immigrant who, if he wishes, may speed his transition to citizenship by attendance at neighborhood classes where at the same time he finds comfort in being near his “landsleute.”

Two Sides of the Railroad Track

Because Third Avenue, like the railroad tracks in many a town throughout the United States, is a dividing line between the prosperous and the poor Yorkvilleites, the tables in this study are set up to show the marked differences in density, family size, sex, age, nativity, occupation, schooling, and citizenship status for the areas east and west of Third Avenue. The basic unit of tabulation is the *health area*, an aggregate of census tracts embracing a population of approximately 25,000, or about the number of persons in the average-sized city in the United States. When comparisons on a still smaller population base are appropriate, as in the maps of the district, data are given for census tracts which, in Manhattan, cover approximately eight city blocks or an area of forty acres. Occasionally, comparisons are made in terms of *health center districts*, the administrative units for the services of New York City's Health Department.

These districts, aggregates of health areas, sometimes account for as many as 250,000 persons and correspond in general to familiar sections of New York City. Yorkville, with boundaries which extend from 63rd to 91st streets, and from Central Park to the East River, is the upper half of the Kips Bay-Yorkville Health Center district.

A detailed study of the population of Yorkville reveals one of the most diverse groups of people, economically and socially, embraced by the boundaries of New York City today.

† This is the second of four articles on “Post-War Planning for Yorkville,” which are appearing currently in this *Journal*. The first, “Toward Post-War Planning for Yorkville,” analyzed land planning and zoning in that area and was published in the November, 1942, issue, pp. 483-494. The third paper will discuss housing in transition in Yorkville: the fourth will deal with post-war housing needs in East Yorkville.

Population Fluctuations

By 1940 Yorkville had more than 50,000 households or families, and had passed its 1920 peak of 47,800, from which it had receded in 1930 (Table I).

The two sections of Yorkville, however, did not keep equal pace. The tenement area east of Third Avenue had 2,000 fewer families in 1940 than it had in 1920; the area west, 5,000 more households than in 1920 (See chart).

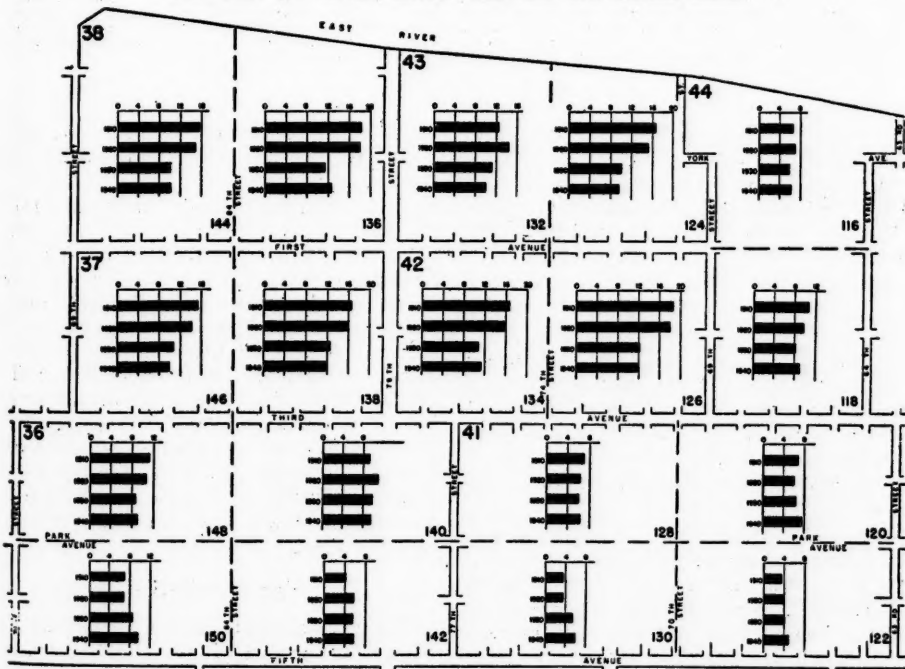
The fact that Yorkville's gain in population between 1930 and 1940 amounted to only 4,373 individuals, while the number of households increased by 7,405, points to

much smaller family units in 1940 than in 1930. In the area east, the number of households (which, in the main, corresponds to the number of families) increased approximately 13 per cent, or a total of 4,066, while the increase in population amounted to only 55 persons. In the area west, the increase in the number of households (3,301) represented about a 25 per cent increase over the 1930 households, whereas the increase in the total population (4,318) constituted only an 8 per cent increase for the decade.

The increase in the number of households in the district as a whole parallels the type of new housing construction in both the east and west areas. In the west, many

POPULATION IN THOUSANDS FOR YORKVILLE
BY HEALTH AREAS AND CENSUS TRACTS
1910-1940*

Health areas: upper left-hand numbers, Census tracts: lower right-hand numbers.



* Reproduced with the permission of Earl Lomon Koos (Editor), *Kips Bay-Yorkville, 1940*, Department of Public Health and Preventive Medicine in Cornell University Medical College, N.Y., 1942.

TABLE I. HOUSEHOLDS AND INDIVIDUALS, 1940, 1930, AND 1920, AND POPULATION PER OCCUPIED DWELLING UNIT, 1940 AND 1930, YORKVILLE, EACH HEALTH AREA*

AREA	Households				Individuals				Population per Occupied Dwelling Unit ^a	
	Number			Increase or Decrease 1930-1940	Number			Increase or Decrease 1930-1940	1940	1930
	1940	1930	1920		1940	1930	1920			
Yorkville.....	50,892	43,487	47,800	+7,405	163,886	159,513	201,704	+4,373	3.22	3.67
East Area.....	35,103	31,037	37,688	+4,066	104,755	104,700	147,549	+ 55	2.98	3.38
Health area 44..	5,099	4,463	3,393	+ 636	15,246	13,758	16,964	+1,488	2.99	2.97
Health area 43..	7,320	6,915	8,630	+ 405	19,796	21,619	30,456	-1,823	2.70	3.13
Health area 42..	8,130	6,537	8,553	+1,593	23,627	23,329	34,708	+ 298	2.91	3.57
Health area 38..	7,274	6,214	8,850	+1,060	23,720	22,088	34,057	+1,632	3.26	3.55
Health area 37..	7,280	6,908	8,262	+ 372	22,366	23,906	31,364	-1,540	3.07	3.07
West area.....	15,789	12,450	10,112	+3,339	59,131	54,813	54,155	+4,318	3.75	4.40
Health area 41..	5,886	4,515	2,547	+1,371	24,817	21,960	19,727	+2,857	4.22	4.86
Health area 36..	9,903	7,935	7,565	+1,968	34,314	32,853	34,428	+1,461	3.47	4.27

* Source: 16th Census of the United States, *Population and Housing Statistics for Health Areas, New York City*, United States Government Printing Office, Washington, 1942; Welfare Council of New York City, *Heads of Families by Color and Nativity and Country of Birth of Foreign-Born Head*, Columbia University Press, New York City, 1930; Walter Laidlaw, editor, *Statistical Sources for Demographic Studies of Greater New York*, 1920. Census Committee, Inc., New York, 1920.

^a The number of occupied dwelling units in 1940 is roughly comparable with the number of private families or homes shown in the census reports for 1930. Thus the population per occupied unit in 1940 may be compared with the population per private family in 1930 to indicate changes in family size. (From Source)

single-family dwellings and, in the east, some of the old-law tenements which housed large families were replaced in the decade 1930-1940 by housing accommodations suitable for small families with relatively high incomes.

Size of Households

These changes and contrasts are further emphasized by the figures on the population per occupied-dwelling unit. It will be noted that in the area east in 1940, the average population on this basis was 2.98; in the area west, however, it was considerably larger, 3.75 (Table I).

In 1940 in the area east, only one family in fifteen had six or more persons, and in the area west, the ratio was one in seven (Table II). Since the 1940 Census states that a household is composed of the persons who occupy each dwelling unit (including lodgers, servants, and other unrelated persons having no other usual place of residence), the relatively large households in

the western section of Yorkville are undoubtedly accounted for by the number of domestic servants.

The 1940 definition of "occupied dwelling unit" is not synonymous with the 1930 Census use of the word "family." Nevertheless, the number of persons in each is deemed by the Census to be "roughly comparable," so that "population per occupied unit in 1940 may be compared with the population per private family in 1930 to indicate changes in family size."¹ On this basis, between 1930 and 1940, families appeared to decrease in size in both the east and west areas of Yorkville (Table I). Undoubtedly, this is a reflection of the general trend, prevalent in the decade, toward smaller families in urban areas.

Age Distribution

The average (median) of population of Yorkville, like that of the United States as

¹ 16th Census of the United States *Population and Housing Statistics for Health Areas, New York City*, U. S. Gov. Printing Office, Washington, 1942, p. 2.

a whole, is rising. In 1930, 72 per cent of the persons residing there were 21 years of age or over; by 1940, approximately 76 per cent fell in this age group (Table III). More significant in relation to the provision of community facilities is the decline in the proportion in the group under 21 years; in the area east, this figure fell from 31 per cent in 1930 to 25.6 per cent in 1940. Undoubtedly the new multi-family housing in this section, with accommodations for small families in the higher income levels, has been responsible to some extent at least for this change in family composition.

Declining School Population

In the twenty-year period (1920-1940) a striking loss in children of grade school age occurred in the Yorkville community (Table IV). In the area east, the number of school children decreased by 10,218 (54 per cent) or the equivalent of the average enrollment of three city schools. Part of the explanation for this is that between the years 1920 and 1930 Yorkville lost about one-fifth of its population (42,191), largely to outlying areas of New York City. In the next decade it gained only 4,373 persons,

a relatively small proportion of whom were in the school age group.

Such figures as the age of the population, when considered in connection with its sex, its nativity, and its occupational distribution, are very important in planning for recreational space, for school accommodations, and for the provision of a variety of services.

Predominance of Single Women

In still another aspect, the two sections of Yorkville show a decided contrast. On the basis of the data on marital status for those 15 years of age and over in 1930, 6 out of every 10 women in Yorkville were single. In the area east, the ratio was only 2 to 10.

This peculiar sex distribution persisted in 1940, though not to quite the same degree (Table V). In the area east, the total population of 104,755 persons included a predominance of women (about 6,000), whereas in the area west, the women outnumbered the men by over 12,000. The explanation of this extreme divergence in the proportion of women in the two areas is accounted for mainly by the large number of households in the area west employing domestics.

TABLE II. NUMBER OF HOUSEHOLDS AND SIZE OF HOUSEHOLD, YORKVILLE
EACH HEALTH AREA, 1940, PER CENT*

AREA	Total Households ^a	One Person	Two Persons	Three Persons	Four Persons	Five Persons	Six or More Persons
Yorkville.....	50,892	16.8	30.8	21.1	14.5	7.7	9.1
East area.....	35,103	16.3	32.9	22.4	14.8	6.9	6.7
Health area 44.....	5,099	13.9	33.9	24.1	15.5	6.7	5.9
Health area 43.....	7,320	22.6	32.4	21.8	13.9	5.6	3.7
Health area 42.....	8,130	19.8	34.0	19.5	13.4	6.5	6.9
Health area 38.....	7,274	10.3	30.0	24.6	17.6	8.5	9.0
Health area 37.....	7,280	13.9	34.4	22.7	14.2	7.2	7.6
West area.....	15,789	18.0	26.0	18.2	13.8	9.6	14.4
Health area 41.....	5,886	23.2	26.2	15.6	11.2	8.0	15.7
Health area 36.....	9,903	14.9	25.9	19.7	15.4	10.5	13.6

* Source: 16th Census of the United States, *Population and Housing, Statistics for Health Areas, New York City, Washington, 1942.*

^a Households are composed of the persons who occupy one dwelling unit (including lodgers, servants, and other unrelated persons having no other usual place of residence).

TABLE III. TOTAL POPULATION, PER CENT UNDER 5 YEARS OF AGE, BETWEEN 5 AND 14 YEARS OF AGE, AND PER CENT OVER AND UNDER 21 YEARS OF AGE, YORKVILLE, EACH HEALTH AREA, 1930 AND 1940*

AREA	Total Population						Per Cent of Total Population			
	Number		Per Cent				Under 5 years		5-14 years	
			Under 21 years		21 years and over					
	1930	1940	1930	1940	1930	1940	1930	1940	1930	1940
Yorkville.....	159,513	163,886	28.0	24.1	72.0	75.9	6.1	5.1	13.0	11.2
East area.....	104,700	104,755	31.0	25.6	69.0	74.4	6.2	5.0	15.2	11.7
Health area 44.	13,758	15,246	29.3	24.9	70.7	75.1	5.7	4.7	14.3	11.3
Health area 43.	21,619	19,796	33.7	26.0	66.3	74.0	6.8	5.3	16.8	11.9
Health area 42.	23,329	23,627	33.3	24.5	66.7	75.5	6.3	4.2	16.3	11.2
Health area 38.	22,088	23,720	32.8	29.0	67.2	71.0	6.6	6.7	15.7	13.5
Health area 37.	23,906	22,366	28.0	23.4	72.0	76.6	5.4	4.1	12.8	10.6
West area.....	54,813	59,131	22.0	21.5	78.0	78.5	5.9	5.3	8.9	10.2
Health area 41.	21,960	24,817	25.4	26.7	74.6	73.3	9.1	8.1	9.3	13.1
Health area 36.	32,853	34,314	19.4	17.8	80.6	82.2	3.8	3.3	8.6	8.1

* Source: Welfare Council of New York City, *Population in Health Areas, New York City, 1930*, Columbia University Press, New York City, 1931. 16th Census of the United States, *Population and Housing Statistics for Health Areas, New York City*, U. S. Government Printing Office, Washington, 1942.

In addition, probably a considerable number of women live alone in this section of the city. The quiet, exclusive atmosphere of the west area of Yorkville, so convenient to the center of the city, attracts business and professional women of means as well as women of leisure. Thus, in the older section of the area east are the homes of couples who represent the "seed-bed" of new Americans, while the area west may be termed the dormitory of the "more-advantaged" classes, many of them without children.

The "Melting Pot" Predominantly German

Yorkville in 1940 was still a section of Manhattan in which the proportion of foreign-born white families was considerable. In 1930 almost 6 out of every 10 families were of foreign origin. By 1940 foreign-born persons in the population accounted for approximately 4 out of 10, and in the area west for less than 3 out of 10. The significance of the foreign origins, however, is not revealed completely by these figures on the foreign-born. The figure of the native white, many of whom are the

children of first-generation immigrants, includes in the case of Yorkville a considerable number whose parent stock in 1940, as in 1930, was still predominantly German.

Because the 1940 data on families by *nativity of head* are not yet available, comparisons of the present distribution of the foreign-born groups must be made according to the country of origin of individuals (Table VI).

Although the figures of the population in 1940 are not strictly comparable with the family data above for 1930, they disclose that Yorkville's foreign-born colony was still predominantly from German-speaking countries, with a much larger representation of these groups than is found in Manhattan as a whole. In 1940 German-speaking persons accounted for more than 4 out of every 10 among Yorkville's foreign-born. Yorkville in 1940 had a larger proportion of persons from the Irish Free State than did Manhattan as a whole, but not so large a colony as is found on the middle west side. The three thousand Italians in Yorkville amount to not more than 1 in 20 of its foreign-born, whereas the Italians are 1 out

of 6 in Manhattan's foreign-born population. Almost half of all the Czechoslovakians in Manhattan live in Yorkville.

Negroes and Jews in Negligible Numbers

Unlike other sections of Manhattan, Yorkville is predominantly white and non-Jewish. The Negro population in 1940 was less than one-half of 1 per cent in the area east, and just slightly over 2 per cent in the

TABLE IV. CHILDREN ENROLLED IN SCHOOL IN 1935, AND POPULATION 7 TO 13 YEARS OF AGE IN 1920, 1930, AND 1940, YORKVILLE, EACH HEALTH AREA

AREA	School Enrollees ^a	Population (7-13 years)		
		1935	1920	1930
Total, Yorkville	12,005	23,100	14,714	12,940
East area	9,458	18,933	11,402	8,715
Health area 44	1,146	1,962	1,432	1,216
Health area 43	1,841	4,240	2,585	1,646
Health area 42	2,205	4,550	2,733	1,957
Health area 38	2,357	4,422	2,460	2,239
Health area 37	1,909	3,759	2,192	1,657
West area	2,547	4,167	3,312	4,225
Health area 41	780	1,313	1,283	2,283
Health area 36	1,767	2,854	2,029	1,942

^a Source: Welfare Council of New York City, *School Children 7-13 Years of Age in 1935, Compared with Population in the Same Age Group Enumerated in 1910, 1920, and 1930; Each Health Area in New York City*, Columbia University Press, New York, 1937.

^b Source: 16th Census of the United States, *Population and Housing Statistics for Health Areas, New York City*, U. S. Government Printing Office, Washington, 1942. Since the class intervals for ages of children given in the 1940 Census are 5-9 years and 10-14 years, the number of children in the 7-13 year grouping had to be calculated. To do this, it was assumed that there was an even distribution of children within each of the 1940 class intervals.

area west. Although no exact data on the religious affiliations of its inhabitants are available, some clues to their distribution are offered by the different nativity groups as well as by the location of the various churches and shops that cater especially to certain groups. On the basis of such criteria, Yorkville was less Jewish in 1940 than it was in the early 1900's. Some of Yorkville's Jewish population have moved with

their non-Jewish neighbors to Yorkville's suburb in Queens-Astoria, which formerly was reached by ferry from 92nd Street and the East River. Others have migrated to newer sections of the Bronx. Many of Yorkville's well-to-do Jews are domiciled across Central Park and have taken their synagogues and institutions with them to the upper middle west side. The Jewish population now in Yorkville lives, for the most part, in the west area where 6 of the 7 synagogues in Yorkville are located.

The Catholic population in Yorkville includes both well-to-do and poor, with the latter in the majority. Like the Jews, the well-to-do Catholic families are found in the area west in Yorkville, in which are located 3 parochial schools, 3 Catholic high schools, and 4 Catholic churches. Nonetheless, it is safe to assume that, in spite of the liberal sprinkling of well-to-do Catholic and Jewish families, the households in the western section are still predominantly Protestant. This assumption is borne out by the large proportion of native-born in the population of that section, and the predominance among the foreign-born of immigrants from Protestant countries, exclusive of the number from Ireland who serve as domestics in these households. There are eleven Protestant churches in the two Health Areas west of Third Avenue.

Citizenship

Contrary to expectation, the area east is credited with a larger population of naturalized persons among the foreign-born white than is the area west of Third Avenue (Table VII). Possibly the higher proportion of aliens in the area west is related to the large proportion (37.3 per cent) of its employed persons who are domestic servants, and the larger number of Irish-born women in that area. However, because immigrants from Germany, Austria and Hungary predominate, it is impossible, without making a cross-tabulation of citizenship by country of origin, to determine the variations of citizenship status among the different immigrant groups in the two sections. The generalization in regard to the higher incidence of aliens among the foreign-born in the area west is not inconsistent with the retention of their original citi-

TABLE V. TOTAL POPULATION, MALE AND FEMALE, PER CENT OF WHITE POPULATION BY NATIVITY, AND MEDIAN SCHOOL YEARS COMPLETED, MALE AND FEMALE, 25 YEARS OF AND OVER, MANHATTAN AND YORKVILLE, (EACH HEALTH AREA),

AREA	Total Population	Male		Female		Per cent of total population			Median School Years Completed Persons 25 & Over	
		Number	Per Cent	Number	Per Cent	Native White	Foreign-born White	Non-white	Male	Female
Manhattan.....	1,889,924	926,133	49.0	963,791	51.0	54.9	28.6	16.5	8.4	8.5
Yorkville.....	163,886	71,999	43.9	91,887	56.1	62.9	36.2	0.9	8.6	8.6
East area.....	104,755	49,567	47.3	55,188	52.7	61.1	38.5	0.3	8.2	8.2
Health area 44.....	15,246	6,992	45.9	8,254	54.1	61.0	38.7	0.3	8.3	8.2
Health area 43.....	19,796	9,049	45.9	10,747	54.1	60.7	39.1	0.1	8.0	8.0
Health area 42.....	23,627	11,104	47.0	12,523	53.0	62.1	37.4	0.4	8.3	8.3
Health area 38.....	23,720	11,197	47.2	12,523	52.8	67.3	32.4	0.3	8.3	8.2
Health area 37.....	22,366	11,225	50.2	11,141	49.8	54.7	44.9	0.4	8.1	8.1
West area.....	59,131	22,432	37.9	36,699	62.1	65.8	32.1	2.1	2.9	11.2
Health area 41.....	24,817	9,009	36.3	15,808	63.7	66.5	30.9	2.6	13.3	10.2
Health area 36.....	34,314	13,423	39.1	20,891	60.9	65.2	33.3	1.5	12.8	12.0

* Source: 16th Census of the United States, *Population and Housing Statistics for Health Areas, New York City*, U. S. Government Printing Office, Washington, 1942.

zanship among certain groups. Whether or not an immigrant files for citizenship depends on such factors as: (1) the extent to which the new country makes the non-English-speaking immigrant feel inferior to the English-speaking immigrant; (2) the reason for immigration; and (3) the likelihood of return to the native land. In the past, such groups as the Irish and English, and some Italians, have looked forward to returning to the country of their origin. On the other hand, this was not possible for immigrants from other countries who came to America because of political or religious persecutions. This last group was more likely, therefore, to take out citizenship papers. No doubt World War II will radically change this situation in the Yorkville of the future.

Contrasts in Occupational Distribution

The occupational distribution of persons in the two sections of Yorkville also shows marked contrasts (Table VIII). The proportions of professional workers as well as the group which included proprietors, man-

agers and officials, in the area west was almost twice that in the area east. In the area east, craftsmen, foremen, operatives, laborers and service workers other than domestics, together accounted for more than half of all those employed (53.8 per cent) but in the area west, only about one-tenth. The most striking contrast in the two areas is in the category of domestic workers, which in the area west amounts to almost two-fifths of the total and to only 7.0 per cent of the largest group—the professionals—in the area east.

Figures such as these suggest marked distinctions in the two areas. In the area west, the 10,000 professional and managerial persons are matched by a slightly larger number of persons working as domestics and living with the households. In the area east, in which craftsmen and operatives account for about 12,000 persons, or nearly 3 out of every 10, and sales and clerical persons for 2 out of every 10, managers, officials and professionals are fewer than 1 out of 10. In the area west, those with less remunerative occupations live mainly in the homes of those with more remunerative oc-

TABLE VI. COUNTRY OF BIRTH OF FOREIGN-BORN WHITE: MANHATTAN AND YORKVILLE,
NUMBER AND PER CENT BY (HEALTH AREA). 1940*

AREA	Germany		Austria		Hungary		Czechoslovakia		Italy		British Isles ^a		Irish Free State		Scandinavia ^b		All others ^c	
	Num-ber	Per Cent	Num-ber	Per Cent	Num-ber	Per Cent	Num-ber	Per Cent	Num-ber	Per Cent	Num-ber	Per Cent	Num-ber	Per Cent	Num-ber	Per Cent	Num-ber	Per Cent
Manhattan.....	540,197	13.5	37,591	6.7	19,472	3.5	12,637	2.3	88,074	16.3	36,375	6.7	60,494	12.5	13,899	2.6	198,870	36.9
Yorkville.....	59,302	22.9	4,068	6.8	5,058	8.5	5,904	9.9	3,137	5.3	5,729	9.7	9,409	15.9	3,413	5.8	8,984	15.2
East area.....	40,222	24.1	3,424	8.5	4,509	11.2	5,653	14.0	2,715	6.8	2,740	6.8	5,362	13.3	1,519	3.8	4,615	11.5
Health area 44.....	594	10.0	238	4.0	483	8.2	533	9.0	388	6.6	803	13.6	1,367	23.2	519	8.8	976	16.6
Health area 43.....	7,746	12.5	542	7.0	969	12.5	2,785	35.9	295	3.8	436	6.1	1,356	6.9	207	2.7	973	12.5
Health area 42.....	8,841	14.5	1,392	15.7	877	9.9	1,392	15.7	1,175	13.3	533	8.8	1,356	6.9	302	3.4	482	5.6
Health area 41.....	7,692	13.5	565	7.3	1,012	13.2	632	8.2	411	5.3	428	5.6	1,238	7.7	186	2.4	1,053	13.6
Health area 37.....	4,186	41.7	687	6.8	1,168	11.6	311	3.1	446	4.4	456	4.5	1,354	13.5	303	5.0	1,131	11.4
West area.....	19,080	20.5	644	3.4	549	2.9	251	1.3	422	2.2	2,989	15.7	4,047	21.2	1,894	9.9	4,369	22.9
Health area 41.....	7,660	13.1	200	2.6	143	1.9	70	0.9	135	1.8	1,430	18.7	1,740	22.7	1,087	14.2	1,848	24.1
Health area 36.....	11,420	23.5	444	3.9	406	3.5	181	1.6	287	2.5	1,559	13.7	2,307	20.2	807	7.1	2,521	21.0

* Source: 16th Census of the United States, *Population and Housing Statistics for Health Areas, New York City*, U. S. Government Printing Office, Washington, 1942.

^a England, Wales, Scotland, and Northern Ireland.

^b Norway, Sweden, and Denmark.

^c Other European countries, Asia, Canada, Newfoundland, Mexico, Cuba and other West Indies, Central and South America.

cupations, whereas, in the area east, the class distinctions of master and servant are relatively infrequent in the same household. The figures on years of school completed are consistent with those on occupational distribution in the two areas.

Years of School Attendance

In Manhattan as a whole, half of the persons twenty-five years of age and over in 1940 had completed approximately eight and one-half years of school (Table V). In the east section of Yorkville, the figure was only slightly lower for both men and women. While the figures show less schooling among the women than among the men in each of the health areas in the west section, the median number of years for women—10.2 and 12.0—is considerably larger than in the area east. No doubt the median for the women in the area west is brought down by the larger number of domestic workers in that area.

Prophecy

When the war is over, it is hardly likely that for some time immigrants from Ger-

man-speaking countries will come to America in any considerable numbers. Should this hypothesis prove to be correct, present population trends (i.e., the declining household size, especially in the area east, the decreasing proportion of the school-age group in the population, and the increasing proportion of native-born and of naturalized citizens) will probably continue without an influx of foreign-born. These trends will tend to make "the other side of the railroad tracks" (i.e., east of Third Avenue) more like the area west, although undoubtedly the housing accommodations will be for families of lower economic status for the most part.

The effect of the return of the soldiers to civilian life and of the change from war production to civilian economy upon employment for the white-collar and the skilled workers, who comprise such a large proportion of the persons now living in the area east, is hazardous to predict. If a depression comes, obviously the replacing of the old-law tenements by the newer apartments (which will be discussed in the next section of this study) may be temporarily stalled. If, on the other hand, a period of

TABLE VII. CITIZENSHIP OF FOREIGN-BORN WHITE 21 YEARS OF AGE AND OVER, MANHATTAN AND YORKVILLE (EACH HEALTH AREA), 1940*

AREA	Total Foreign-born White	Naturalized		Alien				Citizenship Not Reported	
		Number	Per Cent	First Papers		No Papers		Number	Per Cent
				Number	Per Cent	Number	Per Cent		
Manhattan.....	519,028	291,082	56.1	70,175	13.5	136,678	26.3	21,093	4.1
Yorkville.....	57,348	31,642	55.2	8,637	15.1	14,127	24.6	2,942	5.1
East area.....	38,813	22,090	56.9	5,630	14.5	8,943	23.1	2,150	5.5
Health area 44.....	5,768	3,685	63.9	670	11.6	1,186	20.6	227	3.9
Health area 43.....	7,438	4,263	57.3	1,161	15.6	1,708	23.0	306	4.1
Health area 42.....	8,561	4,950	57.8	1,077	12.6	2,046	23.9	488	5.7
Health area 38.....	7,373	4,159	56.4	898	12.2	1,850	25.1	466	6.3
Health area 37.....	9,673	5,033	52.0	1,824	18.8	2,153	22.3	663	6.9
West area.....	18,535	9,552	51.5	3,007	16.2	5,184	28.0	792	4.3
Health area 41.....	7,499	3,687	49.2	1,178	15.7	2,323	31.0	311	4.1
Health area 36.....	11,036	5,865	53.1	1,829	16.6	2,861	25.9	481	4.4

* Source: 16th Census of the United States, *Population and Housing Statistics for Health Areas, New York City*, U. S. Government Printing Office, Washington, 1942.

TABLE VIII. MAJOR OCCUPATION GROUP OF EMPLOYED PERSONS, 14 YEARS OF AGE AND OVER, MANHATTAN AND YORKVILLE, (EACH HEALTH AREA) NUMBER AND PER CENT, 1940*

MAJOR OCCUPATION GROUP	Manhattan		Yorkville		East area		West area	
	Per Cent	Number	Number	Per Cent	Number	Per Cent	Number	Per Cent
Total employed ^a	783,564	100.0	73,622	100.0	43,386	100.0	30,236	100.0
Professional workers.....	84,552	10.8	9,855	13.4	4,313	9.9	5,542	18.3
Semi-professional workers.....	13,791	1.8	1,135	1.5	606	1.4	529	1.9
Proprietors, managers, and officials.....	81,321	10.4	8,084	11.0	3,263	7.5	4,821	15.9
Clerical, sales, and kindred workers.....	169,066	21.6	12,402	16.8	8,378	19.3	4,024	13.3
Craftsmen, foremen, and kindred workers.....	54,217	6.9	5,526	7.5	4,841	11.2	685	2.3
Operatives and kindred workers.....	128,253	16.4	9,022	12.3	7,904	18.2	1,118	3.7
Domestic service workers.....	68,129	8.7	14,309	19.4	3,025	7.0	11,284	37.3
Service workers, except domestic.....	148,863	19.0	10,909	14.8	8,973	20.7	1,936	6.4
Laborers.....	30,010	3.8	1,736	2.4	1,603	3.7	133	0.4
Occupation not reported.....	5,362	0.6	644	0.9	480	1.1	164	0.5

* Source: 16th Census of the United States, *Population and Housing Statistics for Health Areas, New York City*, U. S. Government Printing Office, Washington, 1942.

^a Excluding public emergency work.

prosperity immediately follows the cessation of hostilities, this replacement may go on at a rapid rate. In the latter case, the spots of local color furnished by the German and Hungarian restaurants, their meeting halls and their movies, will become smaller and dimmer. The whole area bounded on the west by Central Park and on the east by the new East River Drive may in the future be another one of those "oases in Manhattan"—a predominantly residential community for the older and better-established native-born with few or no children.

However, it is quite possible that, instead, the section east of Third Avenue will continue as in the past to be the home of the Czechs, Italians, and Irish immigrants, as well as of the immigrants from German-speaking countries. Since, on the whole, these groups are more likely to be found in the less remunerative occupations and to have large families, they are less likely to demand or to be able to pay for the more

expensive living quarters characteristic of much of the pre-war new construction in Yorkville. Thus, if the foreign-born at present living in the eastern area of Yorkville are to continue to live there, future community planning will have to make provision for their needs. Since the new construction erected by private enterprise has been high-rental in character, the demand for family accommodations for the foreign-born groups will undoubtedly have to be met through some form of governmental-housing subsidy.

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Rebuilding American Cities After the War

AFTER this war, in order to maintain full national employment and to prevent our war-gear economy from plunging into a tail spin, it is imperative that we find ways and means to spend over twenty billion dollars a year on durable consumers' goods. If this nation had an Aladdin's lamp and could call upon a genie to give our people the most enduring post-war gift, we should ask for one thing—rehabilitated and reconstructed American cities. The need for housing, not only for the lowest income third of our population but for millions of other citizens, is urgent. Of our 27,750,000 non-farm homes, approximately 4,000,000 need major repairs and 6,700,000 more lack private baths. In no segment of our economy has our productive genius lagged further behind in furnishing our people with the benefits of modern technology than in the field of homes. Supplying this need will create a demand for from 1,500,000 to 2,000,000 dwelling units a year for ten years after the war. This will contribute, with accompanying utilities, some ten billion dollars annually toward maintaining full employment and at the same time will strengthen that indispensable foundation of our free American life—the home where children are reared. This great housing program can be carried out almost entirely by private builders. If most of our people are employed at anything near wartime wages, most of them will have the money to buy homes without a federal subsidy.

The fabrication of 15,000,000 to 20,000,000 new dwellings in the first decade after the war will give a huge job to the construction industry. The designing of these homes will open an immense field for architects. The building of houses, however, differs in one most vital particular from most other durable goods: The house is irrevocably tied to the site on which it is constructed. It is not on wheels like an automobile, and except for certain temporary or demountable types, it cannot be moved except at great expense. Therefore, home building after the war is not merely a question of the design, manufacture of materials and assembly of millions of dwelling

units; it is a matter of placing these homes in the right location, and of the proper arrangement in that location.

The right location means, first of all, that the post-war homes be built in cities where there are sufficient factories and commercial establishments to give employment to workers. In some cities thousands of permanent homes and temporary barracks have been constructed to shelter workers in shipyards and airplane plants. These cities may have an over-supply of homes when these war industries sharply reduce their activities. Other cities which possess raw materials, a labor pool and transportation have also acquired new modern industrial plants built for war but ideally adapted for peace-time industries. These communities will doubtless attract industry away from cities with obsolete industrial plants. The first step in the post-war housing program, therefore, is to determine where it is most advantageous to carry on peace-time industry. Since three-fourths of the new war plants have been located near existing metropolitan centers, and since these areas also possess established transportation facilities and existing utilities in the form of water, sewer, telephone, and gas, as well as homes for workers, it is highly improbable that these peace-time industries will be set up in virgin prairies, far removed from existing cities. The millions of homes erected after the war will not be placed in new cities; they will be fitted into the patterns of existing cities, in numbers to be determined by the relative advantages of these cities for post-war industry and trade.

Millions of new homes, however perfectly each may be designed as a separate dwelling unit, cannot be sprinkled at random throughout these metropolitan areas. A fine house would lose most of its value if it were erected in a slum because, chameleon-like, it takes on the character of its surroundings. Its worth would be impaired by its drab environment. Moreover, even a whole neighborhood of splendidly-designed new dwellings sacrifices much of its utility if houses are placed close together in rectangular blocks facing heavy-traffic thoroughfares. The architect faces a new re-

sponsibility. He must plan a modern neighborhood as well as an individual house. Nor does the architect's and the planner's responsibility end there. Splendid types of new communities have, in fact, been designed in Roland Park, Baltimore, in the country club district of Kansas City, in Shaker Heights, Cleveland, in River Oaks in Houston, in Coral Gables, Florida and in hundreds of new suburban developments designed by the Land Planning Division of the Federal Housing Administration. These new modern neighborhoods—with wide lots, curved streets, architectural control, community centers, etc.—are well integrated within themselves; but they are not integrated with the rest of the metropolitan community. They set up a new pattern of planning that attracts the higher- and middle-income groups, but they are like oases or foreign settlements walled off from the nearby or adjacent mass of urban homes. What is needed now is a master plan for a large city in which the new neighborhoods can be fitted into the permanent city structure and in which old, obsolete home areas will gradually be replaced with new model neighborhoods until, in the course of two generations, new model cities will emerge out of the chaos and disorganization.

In order to understand the full nature of the problem of rebuilding American cities, it is necessary to review briefly the processes by which they came into being. Never before has the world witnessed such a rapid growth of city building as from 1800 to 1930, when 38 cities attained a million population for the first time. In the United States, as the result of the opening up of the vast resources of a virgin continent with the tools of the industrial revolution, the number of American people living in urban places of 2500 population or more increased from 200,000 in 1790 to 75,000,000 in 1940. In the 30 years from 1900 to 1930 there was an increase of 35,000,000 in the population of urban communities of 8,000 or more. This was equivalent to the building of a new city of 50,000 population every 12 days. In this century-and-a-half of unparalleled urban growth, it seemed to many that our cities "just grew" like Topsy; or, like Kipling's city in India, the American city grew:

"As the fungus sprouts chaotic from its bed
So it spread—
Chance-directed, chance-erected, laid and built
On the silt—
Palace, byre, hovel—poverty and pride—
Side by side—"

But American cities, although constructed mostly without benefit of any city plan and by millions of individual builders following the profit motive, *did* follow certain principles of growth. Like iron filings under the attraction of a magnet, houses, stores and factories fell into certain patterns as a result of the geography of the city site and the dominant form of transportation. The colonial cities, such as New York, Boston, Philadelphia, Savannah and Charleston, developed mainly around seaports, with the business houses near the landing and the homes of merchants on the main street near the stores. Likewise, cities developed at river crossings and falls, such as St. Louis, Kansas City, Cincinnati and Louisville, with the first business houses and stores near the river landings. The coming of the railroad brought about a new orientation around the railroad depot, although in some cities, such as Chicago, the railroads sought water connections and reinforced the earlier pattern of growth. Many interior cities, such as Omaha, Denver and Wichita, developed mainly as a result of the railroad.

As American cities rapidly grew far beyond the expectations of their founders, the central stores, shops and factories spread over the area of the first residential settlement, causing a revolutionary change in the original pattern of land use. Factories and skyscraper office buildings were thrust up in older residential areas, thereby creating disorganization at the center. New residential areas were developed in tentacles or bands along emerging systems of internal transportation. Horse-drawn omnibuses were the first forms of mass transportation. They were followed by horse cars and steam suburban railroads as early as the 1850's. Cable cars made their first appearance in San Francisco in the seventies and in Chicago in the eighties. Elevated lines were first constructed in New York in 1877 and in Chicago in 1890. Electric surface street cars had their period of most rapid growth from 1890 to 1910. Subways began to operate in

New York in 1904. Families who did not live within walking distance of their place of employment selected home sites within a half-mile of fixed transportation routes to the central office or industrial areas. Thus cities grew out from the center in concentric circles, or in nodules, or in long tentacles along suburban railway and electric routes. As the cities increased in size, the rising executive class built its homes in districts possessing the best transportation lines to the downtown area, preferably on moderate elevations leading to open country beyond. These high-grade residential areas tended to expand from the center of the city towards the periphery in the form of sectors like the cut of a pie. Meanwhile, most of the industrial workers lived in low areas near the noise and dust of the factories where they were employed. Successive waves of immigrants entered areas such as the Lower East Side of New York or the West Side of Chicago to replace the first settlers who moved farther out on the new transportation lines.

American cities, prior to World War I, grew so rapidly that expanding industries and stores, new tides of immigrants, and migrants from rural areas filled the older sections of the city structure and kept alive the hope that a succession of higher and better uses would automatically rejuvenate the city. A single new office building, apartment hotel, or factory created the illusion that all the surrounding blocks would soon be filled with such structures.

Beginning with the depression of the 1930's, however, a number of forces combined to destroy the capacity of the central city to rebuild itself without the aid of a master plan and without the power of a land authority to condemn and to redevelop blighted areas. First, the rate of population growth of American cities slackened decidedly between 1930 and 1940 as a result of the failure of urban industry and trade to provide additional jobs.

Second, this almost stationary total number of persons was distributed over an extensive area on the periphery of the city because of the automobile, and this left large areas of declining population near the center. In the decade from 1930 to 1940, in metropolitan areas of 50,000 population or more, there was an increase of only 4 per

cent in the population of the central cities and an increase of only 8 per cent in the population of their incorporated suburbs. The unincorporated areas near these cities gained 27 per cent, however.¹

Third, these central slum areas, which contained old and dilapidated residential structures for the most part, were split into thousands of separate ownerships so that assembly into large tracts by private individuals at reasonable cost was almost impossible.

Fourth, these central blighted areas were occupied mostly by families in the lowest income groups, and the owners tended in many cases to fail to make adequate repairs or to pay taxes. With the improvement of housing standards in the form of modern plumbing, only the lowest income groups were compelled to live in the out-moded houses of a former generation. Large areas failed to pay the cost of providing the city service of police and fire protection, and for the expense of maintaining streets, sewers and water mains.

Fifth, in these city slums there was an almost complete breakdown of neighborhood control, with the result that the crime and disease rates were the highest in the city.

Sixth, the filtration of families, contaminated by the vicious environment of the slums into adjacent areas, threatened the stability of residential investments in the rest of the city. Like a cancer, blight spread through all the tissues of the urban body and the urban organism was unable to cure itself except by a major surgical operation.

These degenerative forces that have been destroying the inner core of our central cities since 1929 will gain momentum rapidly after this war. Most of our cities will then face a crisis that will threaten their financial solvency. Our cities should make plans now for the clearance of the blighted areas and the replacement of the central slums by new model neighborhoods. If our metropolitan communities are allowed to grow in the future without plan or direction, the central business areas will be surrounded by hollow shells with large numbers of dilapidated buildings and jungles of crime, while on

¹ New York and Los Angeles were omitted from this list because both include large vacant areas within their corporate limits.

the outer rim of the city there will spring up hundreds of small independent neighborhoods, each developed on a model plan but without any organic relationship to the central city. It will be very expensive to operate an urban structure which has as its center half-empty schools and little-used streets, sewers and water facilities—and, at its periphery, a conglomeration of disconnected neighborhoods which require a duplication of these unused central facilities. The additional costs of providing services for such a diffuse and poorly organized city will completely break down the already overloaded municipal debt structure.

Master plans for rebuilding American cities must, therefore, be prepared now if we are to save ourselves from a chaotic, hit-or-miss building boom after the war which will suck most of the remaining values from the property within the corporate limits of our present cities.

This task is not one of planning an entirely new city like Canberra, Australia, or Willow Run, near Detroit. There the planner has a clean slate on which to work. He can lay out plans for his dream city on his drafting table without reference to existing buildings. No master plan can be drawn for universal application to the rebuilding of existing American cities. Each metropolitan center is unique and a plan must be tailored to fit its own shape and structure.

The first prerequisite for the making of a master plan for any city is the demarcation of the exact extent of its blighted area. This can be done by determining the sections of the city where most of the residential structures are over 50 years old, and where a large proportion of the homes also lack private baths or are in need of major repairs. Encircling this central slum are a series of other areas, each outer ring being somewhat newer and better than the one lying nearer the center. In the course of time these areas in turn will be rebuilt, but the chief problem today is to determine what areas should be reconstructed in the first post-war generation. The first task of city rebuilding after the war is to clear away our worst housing—which is located in the central slums—and to bring back to the heart of the city tree-lined home areas with parks and playgrounds.

The Chicago Plan Commission, reconsti-

tuted by the Mayor and City Council in 1940, has taken the lead in preparing plans for reconstructing Chicago. Its Research Division has prepared maps of its blighted area and also of its conservation, stable and new-growth areas, which will be ripe for redevelopment after 25 or 50 years. H. Evert Kincaid, Executive Director of the Commission, has prepared plans for new model neighborhoods for the cleared central blighted area and for the vacant areas within the outer rim of the city. These new home areas provide for wide lots, curved streets, community centers and for through traffic routed around them. They are integrated into the comprehensive express highway, and an industrial and recreation plan for the entire city.

The carrying out of the plan for the wholesale rebuilding of the blighted areas of American cities will require vesting in public and private occupations the power of condemnation. The public purpose which justifies the exercise of this power is the *clearance of the slum*, which is insidiously but inevitably destroying our cities. It may be necessary to secure federal funds, as advocated by Guy Greer and the Urban Land Institute, to finance the acquisition of the large areas of blighted area necessary to establish new neighborhoods entirely free from reminders of the slum. The courts, however, should be fully apprised of the low earning power of slum land (and buildings), of the slight possibility of its ever being converted to a higher and better use by unaided private initiative, and of the moderate earning power it will yield as sites for housing for low- and middle-income groups, so that excessive prices will not be allowed in condemnation cases. Once the land is acquired by these public or private land commissions, it should be sold or leased at its economic value to private builders, provided they agree to develop it according to the master plan for the city. While some subsidized housing may be necessary for the lowest income groups, it is to be hoped our post-war economy will provide full employment at sufficiently high wages to enable most families to pay an economic rent. The federal government may have to absorb the losses due to the difference between the cost of acquiring and the economic value of this slum land, although this loss may be

offset in whole or in part by the difference between the rate of interest on government loans and the loan rate to private builders. The cost also may be reduced by foreclosing tax delinquent property. A direct expenditure by the federal government to acquire slums will be a wise investment, however. If blighted areas are not so acquired and if all new building is confined to the suburban areas, a huge bill of expense will be imposed on the public by the duplication of the schools and sewers and water mains which already exist in the older areas. In addition to this, a large bill is imposed on the individual by the extra cost of transportation from the suburbs to central areas. Moreover, the cost to society of crime and disease in the blighted areas will constantly increase as coming generations grow up in slums unless these contaminated areas of our nation are removed.

Our future American cities should present a proper balance between the center and the periphery. While the blighted areas must be rebuilt to prevent the spread of infection to all parts of our central cities, the suburban areas will not be neglected. There will be a belt of new garden homes in model neighborhoods built on vacant land around the outer edge of the city and within walking distance of the new war plants on the periphery that will be converted to peace-

time uses. The conservation area of the belt of middle-aged homes between the central slum and the suburbs will be made more livable by removing some of the oldest structures, by closing for use as playgrounds for children some unnecessary interior streets, and by providing more small parks and recreation areas.

The United States has before it the prospect of building for our victorious heroes the finest home areas the world has ever known. Even the drawing of plans for rebuilding our cities and the taking of the first steps toward their fulfillment will create a vision that will inspire all our people and cause them to strive towards achieving the goal of the new American metropolis with all the fervor of the waging of war. When the diabolical and destructive forces of the world are curbed, the vast productive forces generated by war should be turned towards the reconstruction of our cities on the newest and latest neighborhood models. This plan of a new urban society, in which the component neighborhoods of great metropolitan centers would have the community life of the small town, should be a major feature of the master plan for the post-war world.

HOMER HOYT

Chicago Plan Commission

Bibliography on Urban Reconstruction

AS a result of a rapidly growing interest in plans for redeveloping the blighted areas of our cities after the war, a number of books and articles dealing with this subject have been published recently. Some of these significant writings which deal with the future land use patterns of our cities are listed herewith as a guide for students of urban land problems.

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Land Resources Department

Tenure Situation in the North Central Region: 1940-1944†

LAND tenure is the term applied to the various methods by which individuals, groups of individuals, or their government hold rights to use and receive income from land. As such, it has no significance in itself. It attaches importance only when the methods used to hold rights to land use and land income interfere with or facilitate essential and desirable adjustments—adjustments needed to maintain world peace, to produce the types and quantities of agricultural products required by our economy, to increase the standard of living and the security of farm families, and to conserve the natural resources.

This statement is directed primarily toward a better understanding of the nature of tenure change during wartime. The analysis presented here may be helpful in forecasting the tenure situation at the end of the war. But more important is the understanding of the process by which tenure changes. This process vitally affects the success of agricultural programs both in war and in peace.

Land Tenure in 1940

In 1940 about 1,673,000 farmers were operating in the eight states of the North Central Region.¹ Of these farmers, 32 per cent were full tenants, 12 per cent were part owners, and 56 per cent were full owners.

† Elco L. Greenshields, Senior Agricultural Economist, Bureau of Agricultural Economics, Washington, D. C., assisted in developing and carrying out a regional tenure research project from which much of the data contained in this paper has been taken. The original notes were prepared for the discussions of the Regional Post-War Planning Committee, U.S.D.A., on "The Agricultural Situation at the End of 1944."

¹ The North Central Region is considered herein to include the states of Minnesota, Wisconsin, Michigan, Ohio, Indiana, Iowa, and Missouri.

Included in their farms were 215,150,600 acres of land. About 45 per cent was operated under lease by full tenants and part owners. The remainder was operated by either full or part owners. The average size of farm in the region was 128 acres. Farms operated by full tenants averaged 146 acres; by part owners, 193 acres; and by full owners, 103 acres. About 242,700 farm operators in the region reported working off their farms more than 100 days in 1939. Of these, 67 per cent were full owners, 7 per cent were part owners, and 26 per cent were full tenants.

The above statistics on tenure for the region are only a small portion of those readily available. Two points need re-emphasis, however, since they are not too commonly considered in the development of our agricultural policies and programs.

First, many farmers in the region have been part-time farmers. These farmers, usually on small units, attempt to supplement their income by work on other farms, in forests, or in nearby industry. These farmers are as dependent on their rights to receive nonfarm income as on their rights to use and receive income from land. Their peculiar problems should be given attention in war and post-war programs.

Second, part-owner operation (part of the land in an operating unit is owned and part is leased) has been an important method of farming in the Midwest. Twelve per cent of the farm operators in 1940 were part owners. Farms of part owners were larger than farms of either full owners or full tenants. (Part-owner operators represent as large a proportion of operators in the better areas of the Corn Belt as in the less productive areas of the region.) Almost all the farms in the region are family-sized farms, but the capacities of farm families differ, and even during the life of one family its capacity varies widely. The size of farm business

should be flexible enough so that, as the farm family grows into peak productivity—as the farmer becomes experienced and the children become old enough to help with farm work—the business can be expanded. Later, the size of business may have to be reduced as the family grows older. Part-owner operation offers flexibility in size of business and at the same time affords some of the security of ownership. Agricultural policies and programs must recognize the flexibility of the farm family and strive to make it easier for that family to increase or decrease the size of its business accordingly. The experience of part owners should be helpful in the development of those policies and programs.

Tenure Changes, 1940-1944

Changes in Land Ownership. Since 1940 a large amount of land has been transferred. Up to the present, July 1, 1943, the ownership of land has generally changed from unwilling to willing owners. Insurance companies, banks, estates, retired farmers, and farmers who wish to retire are decreasing their holdings. For instance, between January 1, 1942 and April 1, 1943, in 20 sample counties in the region 3,936 tracts of land

were transferred. Owner-operators and tenants bought 1,116 more of these tracts than were sold by other owner-operators. Nonfarmers, including corporations and estates, sold 1,554 more tracts than were bought by other nonfarmers. In addition, a number of the nonfarmers purchasing land intended to operate the land purchased (Table I).

The new owners are predominantly persons with an interest in operating the land or at least holding it for a considerable period in the future—such as farmers, rural nonfarmers, urban investors with previous ownership experience, and part-time farmers. By the end of 1944 a major portion of the unwilling owners will have sold their land. More people will buy land as a hedge against inflation; and a considerable increase in the land purchases for resale profit will take place. By 1944, some land will be owned by individuals, such as garage and filling-station operators, whose peacetime business was a "war casualty." At the close of the war many of these owners will want to get their money out of land for use in their former businesses.

In 1944 owner-operators will own more land than was owned by owner-operators in 1940, but the increase in 1943 and 1944 will not be so great as that between 1940 and 1942. In 1944 a considerable number of industrial workers will purchase what they consider post-war security in the form of a little piece of land. Some of these tracts will be close enough to industrial jobs to permit part-time operation during the war.

Change in Land Operators. Since 1940 there has been a small decrease in the area of land operated under lease. Net change in numbers of tenants, part owners, and full owners and in the area of land operated by owners or under lease will not be significant between July 1, 1943 and the end of 1944. However, a number of individual changes are taking place. Many farmers are retiring or reducing their operations, many are moving to different farms or adding to their existing units, and many individuals are starting in as farm operators.

The following analysis of new farmers and of individual tenure changes is presented for a better understanding of the process of tenure change. Failure to appraise the

TABLE I. CLASSIFICATION OF BUYERS AND SELLERS OF ALL LAND TRANSFERRED IN 20 MIDWEST COUNTIES^a (January 1, 1942 to April 1, 1943)*

CLASS	Tracts Sold	Tracts Bought	Difference
	Number	Number	Number
Owner-operators and other farmers	813	1,929	1,116
Nonfarmers (includes estates and corporations)	2,686	1,132	-1,554
Unclassified ^b	437	875	438
TOTAL	3,936	3,936	—

* Source: Land Market Survey of the Bureau of Agricultural Economics.

^a Clinton, Knox, and Logan Counties, Illinois; Grant, Jennings, Knox, Noble, and Rush Counties, Indiana; Cedar, Clarke, and Crawford Counties, Iowa; Audrain, Harrison, Lawrence, Nodaway, and Pemiscot Counties, Missouri; Darke, Medina, Madison, and Muskingum Counties, Ohio.

^b Represents buyers and sellers who were not known locally, a major proportion of whom are nonfarmers.

TABLE II. CHARACTERISTICS OF NEW FARMERS IN 1943 WHO RECEIVED F.S.A. LOANS, 10 COUNTIES*

CLASS	Farm Laborers in 1942		Urban Workers in 1942	
	Farm Labor Experience only	Former Operator	Farm Labor Experience only	Former Operator
	Number	Number	Number	Number
18-25 Years Old				
Owner.....	—	—	—	—
Unrelated tenant.....	11	—	2	1
Related tenant.....	2	—	—	—
26-38 Years Old				
Owner.....	2	—	2	—
Unrelated tenant.....	22	3	6	4
Related tenant.....	5	1	—	—
39 Years Old & Over				
Owner.....	—	—	1	2
Unrelated tenant.....	8	6	2	4
Related tenant.....	1	—	1	—
TOTAL.....	51	10	14	11

Average acres per farm, 130

Average crop acres per farm, 84

* Source: F.S.A. case histories and interviews. Knox County, Illinois; Knox and Rush Counties, Indiana; Cedar, Clarke, and Palo Alto Counties, Iowa; Harrison and Nodaway Counties, Missouri; and Seneca County, Ohio

full scope of these changes in the fall of 1942 caused undue alarm over the possibility that many farms would be idle in 1943. Farmers were retiring and reducing the size of their farms. Farm sales were widely publicized. But, by the spring of 1943, other farmers had taken over the land, livestock and machinery. Probably less land is not in use in 1943 than was the case in 1942. For instance, in Clarke County, Iowa (located in the south central part of the state) only one tract of land had not been leased by April 1, 1943.

New Farmers. Many individuals are operating farms in 1943 who had not operated farms in 1942. The Farm Security Administration, in Region 3 (five Corn Belt states of Ohio, Indiana, Illinois, Iowa, and Missouri), made more than 2,677 loans to new farm operators between October, 1942, and May, 1943. A more detailed study was made of 86 of these new operators in 10 counties. Of these, 61 had been farm laborers in 1942 and 25 had been working in urban areas. All of them had a number of years of farm

experience (an F.S.A. requirement—hence should not be generalized for all new farmers). Of the 61 who were farm laborers in 1942, 10 had operated farms in the past. Of the 25 who had been working in urban areas, 11 had operated farms. Seven of the new operators became owner-operators, 10 rented from relatives, and the rest rented in the usual manner. Sixteen of the new operators were between 19 and 25 years of age, 45 were between 26 and 38, and 25 were 39 years old or over.

The farms to which the new operators moved averaged 130 acres, with 84 acres of cropland (Table II). In all but one of the counties the average size of the new borrower's farm was smaller than the average size of farm in the county, but the crop acres were about equal to the average of the county. There were many reasons why these new operators picked 1943 to start farming. Farms were available. Expectations of high farm income was good. National policy encouraged anyone with experience in agriculture to do his utmost to produce food.

Some owner-operators encouraged good farm laborers to become farm operators by leasing them a part of the farm and by making feed and machinery available to them. In return, the new operator would share labor with the landlord. In general, the new operators had been better-than-average farm laborers and had possibilities of being among the better-than-average farm operators.

New farmers in 1943 who have been assisted by the Farm Security Administration are, by no means, all of the new farmers. Many do not need financial assistance or can secure such assistance from other lending agencies. County officials and lending agency representatives indicated that they had received large numbers of inquiries concerning the possibilities of starting to farm. Many of these inquiries were from people in poorer agricultural areas and from urban areas. There will be no shortage of farm operators by the end of 1944.

Mobility of Farm Operators. Considerable numbers of operators are moving from one farm to another. Others are adding land to

their operating units or are decreasing the amount of land they operate. To get a picture of this mobility, all tenure changes between 1942 and 1943 were obtained in Clarke County, Iowa. In this county changes in tenure occurred on 376 tracts of land. These tracts were not all complete farm units, but their average size was 151 acres as compared with 181 acres average for the 1,439 farms in the county. Of the tenure changes on these 376 tracts of land in Clarke County, 69 involved a change in both owner and operator; 46, a change in ownership only; and 261, a change in operator only (Table III).

Tenants replaced tenants on 182 tracts. Nineteen of these replacements were accompanied by a change in ownership, i.e., there was a change in landlord as well. Although movement of tenants from one farm to another has often been looked upon as socially undesirable, there are indications that many Clarke County tenants improved their position in 1943 by such moves. For instance, among F.S.A. clients, 31 tenants changed farms in 1943. Twenty-two of these tenants

TABLE III. TRACTS OF LAND ON WHICH TENURE CHANGED BETWEEN 1942 AND 1943, CLARKE COUNTY, IOWA*

	Tracts	Total Acres Per Tract	Crop Acres Per Tract
	Number	Number	Number
<i>Change in owner and operator in 1943</i>			
Tenant-operated in 1942 and 1943.....	19	138	92
Tenant-operated 1942; owner-operated 1943.....	36	141	83
Owner-operated 1942; tenant-operated 1943.....	5	232	158
Owner-operated in 1942 and 1943.....	9	90	53
<i>Changes only in ownership, 1943</i>			
Tenant-operated in 1942 and 1943.....	28	158	100
Tenant-operated 1942; owner-operated 1943.....	18	121	62
<i>Changes only in operator, 1943</i>			
Tenant-operated in 1942 and 1943.....	163	163	96
Tenant-operated 1942; owner-operated 1943.....	50	137	74
Owner-operated 1942; tenant-operated 1943.....	47	147	77
Tenant-operated 1942; no operator, 1943..... (as of April 1, 1943)	1	120	25
TOTAL CHANGES.....	376	151	88
<i>Number of farms in county, 1439^a</i>			
<i>Average acres per farm, 181^a</i>			
<i>Average crop acres per farm, 83^a</i>			

* Source: Clarke County A.C.P. records.

^a Taken from the U. S. Census of Agriculture, 1940.

moved to larger and better farms. Four moved to somewhat smaller farms but farms which, in the opinion of the F.S.A. Supervisor, were better suited to the family. Five tenants moved to smaller and definitely less desirable farms. The main reasons for change given by the 26 tenants who improved their position were: (1) that their livestock, machinery, and family labor were sufficient for a larger farm; (2) larger farms were available; and (3) the new farm had better buildings and better land. It should be recognized that this group of farmers had valuable assistance from the Farm Security Administration in getting better farms. The F.S.A. experience also suggests the desirability of a definite program in each county directed at helping farmers get the size and type of farm they need.

Owner-operators replaced tenants on 104 tracts of Clarke County land. Eighteen owner-operators in 1943 bought the land they had been operating as tenants in 1942. Thirty-six bought land leased to another tenant in 1942. Fifty began operating land they had previously owned but had leased to a tenant in 1942. This latter group includes landlords who either had difficulty finding a tenant in 1943 or who wanted to take over operation of the farm. Some of these tracts are being operated with hired labor in 1943.

Tenants replaced owner-operators on 52 tracts. Of these, 47 continued in the ownership of the 1942 owner-operators but were leased to a tenant in 1943. Five tracts were sold by the 1942 owner-operators and the new owners leased the land to tenants in 1943.

Owner-operators replaced owner-operators on nine tracts of land. These tracts were smaller than the average size of farm in the county and their purchase mainly represents additions to existing farm units. However, it is generally true that when a tenant purchases a complete unit to operate as an owner-operator, it is smaller than the unit previously rented.

Owner-operators in 1942 discontinued operation on a total of 61 tracts. In the main, this represents a group of operators who are reducing the size of their operations or retiring. Some of those retiring are passing

the operation of the farm on to a relative.

Whenever an operator changed farms, his move would be part of a chain of moves involving from 2 to 10 others. It was difficult to determine who started each series of changes. Undoubtedly, the motivation came both from those farmers who wished to retire or to reduce their operations and from those farmers who were in a position to expand their operations or commence farming. A number of these series were analyzed in Clarke County. In the fore part of each series, operators of small farms changed to larger farms; however, where tenants became owners, the size of the farm usually decreased. At the latter part of the series, some operator would reduce the size of his operations or retire.

The above data from Clarke County, Iowa, indicates the complicated nature of the process of tenure change. The desirability of such a great volume of change is certainly subject to question. We know that moving from one farm to another is inconvenient and costly. Yet, as long as individuals want to start farming, as long as farm families increase their capacity to produce, and as long as farmers retire, farms will change hands. The war undoubtedly has increased the number of tenure changes. Yet, during the war there are real opportunities for small farmers to improve their position, especially those with adequate family labor. Many of these changes will not prove satisfactory to the operator, partly because he has been forced to make a hurried move from a farm he could use effectively and partly because he has failed to appraise adequately the new farm in relation to his family resources. Farm programs should assist farmers in locating suitable farms and in adjusting the size of farm business to the capacity of the farm family.

Changes in Types of Leases

There does not appear to be much change in the types of leases and leasing arrangements since 1940. Cash rents have gone up some, and in some cases the landlord's share has been increased. Both landlords and tenants received a much greater return in 1942 than in 1940.

Leases in the Corn Belt are usually for one year, but in some areas and in some

groups of farmers, attempts have been made to increase their length. F.S.A. county supervisors have been especially active in this respect. In 1943 the F.S.A. supervisors are finding that neither the tenant nor the owner wants a lease for more than one year; in fact, many longer-term leases are being changed to one-year leases. The main reason why tenants did not want longer leases was that, in view of the uncertain future, they did not want to commit themselves for a long period. Part of this uncertainty results from a greater expectancy of getting a chance to rent a better farm or to own a farm, but probably more important is the general uncertainty created by the war in the minds of all people.

A few labor-share leases are appearing in parts of the Corn Belt, particularly on large farms which require sizable investments for livestock and machinery. In these leases the landlord—often a retired farmer who wishes to maintain his machinery and livestock intact and his farm in maximum production—furnishes the land, livestock, and machinery and gets two-thirds of the income. The tenant furnishes the labor, and sometimes the power, and gets one-third of the income. This type of lease may become more common by 1944 even though it affords somewhat less security to the tenant-operator than he would have under the more common leasing arrangements. By its use, good hired labor can be given an interest in farming and kept on the farm. Also, persons interested in becoming farm operators will be tempted to use this type of lease as livestock and machinery become more difficult to obtain.

Tenure of Farm Labor

The tenure of farm laborers will be much improved by 1944. More laborers can be used than are available. Wages will have increased and farm laborers will be sure of a job for the duration of the war. As previously pointed out, many will become farm operators. Farmers will attempt to hold their hired labor by organizing their farms to provide year-round employment.

A much smaller proportion of hired labor will be single men in 1944 than in 1940. More married men are available for farm labor in 1943 than housing facilities can ac-

commodate. Farmers are trying to make the maximum use of housing facilities for married hired laborers. Some farmers are buying or renting additional acreages which have houses that can be used by the hired men.

The tenure of farm labor after the war poses some difficult problems which are related not only to the farm economy but also to the national labor situation. However, farm labor should have somewhat more security than it has enjoyed in the past, and farm laborers should have the privileges of a social security program. This would be particularly true if, during the war, midwest farmers come to depend on a permanent class of farm laborers such as married hired men or imported Mexican and Jamaican labor.

Summary of Significant Tenure Changes

Significant tenure changes taking place during the period between 1940 and 1944 can be summarized as follows: (1) Almost complete disappearance of unwilling land owners. (2) An increase in the number of owners anticipating speculative profits from resale (particularly in 1943 and 1944, if income taxes and other forms of land market controls are not applied sufficiently to prevent inflation of land values). (3) A small increase in the amount of land owned by operators. (4) An increase in the number of small tracts owned by industrial workers who plan to ride out any post-war depression as subsistence or part-time farmers. (5) An increased number of individual operators changing farms. (6) Slight increase in the average size of farms but considerable change in the individuals included in the different size groups. (7) Lease contracts drawn for shorter-time periods. (8) Increase in labor-share leases. (9) Increased proportion of hired farm labor performed by married men and their families.

Some Suggestions for Land Tenure Programs

The United States will be confronted with agricultural problems in the future as it has

been in the past. Some of these problems will be the result of efforts to produce food for the war, others will have been held over from before the war, and still others will converge upon the country in its shift from war to peace. Tenure arrangements should not prevent solutions of these problems as they arise.

Tenure analysis, particularly that dealing with the process of tenure change, seems to indicate that the following types of programs would aid in the solution of future agricultural problems:

1. Inflation control, especially in land values.
2. Debt adjustment and mortgage insurance to minimize foreclosures in the event we have lower price and income levels after the war.

3. Programs to aid farm laborers to become farm operators, either as tenants or as owners.
4. Programs which aid farm operators to adjust the size of their business to the size of their family.
5. Assist in maintaining satisfactory income for part-time farmers. In this instance, policy should also be developed with respect to the place of part-time and subsistence farming in our agricultural economy.
6. Job security for farm laborers.
7. Retirement programs for farm operators.

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Public Utilities Department

In the Matter of the Rates and Service of the New Haven Water Company¹

THIS case is of more than usual interest to students of public utility economics because of the issues raised by the city of New Haven. The issues of supercession and the reproduction of the service were explored in addition to the usual controversy between original cost and reproduction cost. The city also insisted that "war taxes" should not be included as an operating cost.

On August 14, 1939, the Public Utilities Commission of the State of Connecticut ordered an increase in rates, as requested by the New Haven Water Company, to be effective the first of November, 1939. On July 14, 1941, however, Governor Robert A. Hurley ordered an investigation of the new rates and in a Memorandum Order dated October 20, 1941, the Commission reversed its position and ordered the Company to revert to the rates in force prior to August 8, 1939, beginning January 1, 1942. The Commission also ordered "excess" rates collected during the period November 1, 1939, to January 1, 1942, impounded pending a final order. An exception was made for rates to large industrial users. Because an appeal from the Commission's Memorandum Order of October 20, 1941, was taken by the Company to the Superior Court of New Haven County, the increased rates which became effective November 1, 1939, have remained in force. This appeal has remained dormant but an agreement was reached between the Company and the Commission which provided for impounding the additional rates collected so that the Company could refund to its customers if a final decision were made to return the rates to their previous level.

In a series of hearings, held between November 12, 1941 and April 23, 1943, the

Commission examined witnesses and listened to arguments as presented by the Company, the city of New Haven, the town of Hamden, and the Commission's staff. To facilitate the hearings, the Company agreed not to request any increase in rates above those requested in August, 1939, and all parties agreed to a stipulation that the reproduction cost of the utility property totalled \$28,010,000 (based upon an inventory of May 15, 1939, priced at the average of prices obtaining during the period 1936-1938).

The New Haven Water Company supplies water to the city of New Haven and some ten suburban towns. It also supplies water to the town of Milford through its controlled subsidiary, the Milford Water Company. Up to 1925 the company relied upon what is hereafter called the "old system" for its water supply. This "old system" was capable of producing 23 million gallons per day in a 95 per cent dry year.²

During the period from 1925 to 1933 the Company built, at a cost of \$7,128,000, the North Branford Development. This project included the construction of two large reservoirs with a combined storage capacity of nearly 16 billion gallons and the necessary diversion tunnels to increase the daily production of water by 15 million gallons. The project obtained water from a drainage area of approximately 16.2 square miles.

In connection with the North Branford Development, an additional expenditure of about \$2,500,000 will complete the Hammonasset River Diversion Project. This latter project would increase the production of the Company by 25 million gallons per

¹ Before the Public Utilities Commission of the State of Connecticut, Docket No. 7075, June 21, 1943, Hartford, Conn.

² "A 95 per cent dry year is one of such dryness that 95% of the years will be wetter than that year and 5% of the years will be drier." *Ibid.*, p. 6. Hereafter all production figures will be stated in terms of a 95 per cent dry year.

day and would increase the drainage area of the system by 34 square miles. In contemplation of eventually completing this latter project the Company has already spent approximately \$500,000 for preliminary engineering and the acquisition of land water rights.

It is interesting to notice that, contrary to the usual experience of water utilities, the New Haven Company in its next expansion will encounter a decreasing cost situation. The average investment per million gallons of water delivered daily by the "old system" is \$147,000 and by the North Branford Development, \$475,000; but for the contemplated Hammonasset Project it will be only \$100,000. The latter project when completed will reduce the overall investment of the entire system to \$207,000 per million gallons delivered daily.

The demand for the services of the New Haven Water Company reached 26 million gallons per day in the year 1925, increased to 29 million gallons daily in 1929, returned to the 1925 level during the thirties and advanced to 32 million gallons daily in 1942. The increase in demand in both 1929 and 1942 seems to have been largely an increase in the quantity needed by industrial plants. Only the most optimistic forecaster can foresee the need for completing the Hammonasset Project in the near future since the system already in operation is capable of producing 38 million gallons daily in a 95 per cent dry year.

Dr. John Bauer, testifying for the city of New Haven, contended that since the Hammonasset Project could be completed immediately at a cost of approximately \$2,000,000, such an investment should be made, and that the "old system" should thereupon be depreciated by \$2,358,493. He pointed out that the North Branford Development, together with the Hammonasset Project, would give the Company a supply of 40 million gallons daily at a total investment, including the distribution system, of approximately \$12,500,000. Dr. Bauer referred to this analysis as the application of the theory of supercession. The Commission, however, decided that the witness was attempting to set a value on the utility property by estimating the cost of reproducing the service. In the writer's opinion, the case would have been much stronger after the

construction of the Hammonasset Project had been completed. In the latter event, a legitimate claim could be made for the actual abandonment of some of the more costly producing units of the "old system." There is ample precedent for eliminating from the rate base of a utility all property that is neither used nor useful.

This raises the pertinent question of whether or not the Hammonasset Project should be completed in the near future? It is clear that it is not needed as a supplement to the present sources of supply. It is equally clear that its construction would permit the abandonment of a greater investment in older plant. From the point of view of the consumer, this is to be desired as a method of decreasing rates. It is evident, however, that the investors in the Company would suffer a loss if the Hammonasset Project were built before depreciation reserves have been accumulated to permit such construction without additional investment.

The Commission did not attempt to answer this question. It did, however, point out that Dr. Bauer was in error as to the amount of the "old system" that could be abandoned if the Hammonasset Project were finished. The Commission also rebuked Dr. Bauer for presenting engineering evidence when he was not qualified as an engineer.³

The city also produced an engineer who testified that the entire North Branford Development was unnecessary. It was his contention that the additional water needed in 1925 could have been obtained by sinking wells in the Mill River Valley and the Whitneyville Plain areas of New Haven at a much smaller investment than the \$7,128,000 invested in the North Branford Development. This contention was vigorously denied by a geologist who testified that sufficient water could not be obtained from such wells.

The Company contended that a fair value of the utility property, based upon traditional valuation processes, should be not less than \$25,000,000. It admitted that in making its estimate, predominate weight had

³ In the writer's opinion, the rejection of ideas because the witness is better qualified in another field is to be deplored. The testimony should be judged on its own merits as well as on the reputation of the witness.

been given to cost of reproduction, namely \$28,010,000. The Commission, in its decision, commented upon the fact that the Company had willingly limited its request for a rate increase to the rates under consideration and that these rates would return only 2.7 per cent on a valuation of \$25,000,000. In the words of the Commission, "investors do not willingly content themselves with this rate of return, which is comparable to that earned on Federal Government Bonds."⁴ The Commission therefore concluded that the Company did not honestly believe that the value of the utility property should be \$25,000,000 for rate making purposes.

The Commission in its summation of the case indicated its dissatisfaction with reproduction cost as a useful measure of the rate base of a utility and also expressed its opinion that . . . "The more recent decisions of the United States Supreme Court have freed commissions from the binding force of rep-

roduction cost estimates in the determination of fair value."⁵ The Commission dismissed the contention of the city of New Haven that "war taxes" should not be included in the allowable operating costs with the statement that it did not expect the tax rate to be reduced for a long time and to eliminate any portion of the taxes paid by the utility might mean eventual bankruptcy of the Company with an attendant loss of a vital service.

All of these opinions of the Commission were, however, *obiter dicta*. The decision of the Commission to again authorize the rates requested in August, 1939, was based upon the fact that the rates in dispute would not pay as much as six per cent on any of the proposed rate bases.

⁵ *Ibid.*, p. 13.

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⁴ Docket No. 7075, *op. cit.*, p. 9.

Public Utility Financing in the Second Quarter of 1943

TOTAL public utility security offerings amounted to \$97 millions in the second quarter of 1943 as compared to \$29 millions in the first quarter of 1943 and \$104 millions in the second quarter of 1942. While the total in the current quarter is substantially higher than that of the first quarter of the year, it is only about one-third of the aver-

age second-quarter total in the three years prior to the war.

Two fairly large issues, both of which were offered to the public through underwriters, account for more than 90% of the total volume in the second quarter. Each of these issues is analyzed in Table I. The larger, the Puget Sound Power and Light

TABLE I. SUMMARY AND ANALYSIS OF PUBLIC UTILITY LONG-TERM DEBT ISSUES OFFERED PUBLICLY, SECOND QUARTER, 1943

Company & Issue (A)	Cou- pon Rate (B) %	Principle Amount (C)	Ma- turity Date (D)	Month of Of- fering (E)	Offer- ing Price (F) %	Offer- ing Yield (G) %	Under- writers' Com- missions (H) %	Pro- ceeds to Com- pany (I) %	Esti- mated Inciden- tal Ex- penses (J) %	Net Pro- ceeds (K) %	Cost to Com- pany (L) %
Puget Sound Pwr. & Lt. Co. 1st Mortgage	4½	\$52,000,000	1972	April	104.25	4.00	2.20	102.05	.56	101.49	4.16
Pub. Serv. Co. of Ind. 1st Mtg. Series E	3½	38,000,000	1973	May	102.38	3.16	1.28	101.10	.60	100.50	3.22
Total or weighted average.....		\$90,000,000	—	—	103.46	3.65	1.81	101.65	.58	101.07	3.76

TABLE II. SUMMARY AND ANALYSIS OF PUBLIC UTILITY LONG-TERM DEBT ISSUES OFFERED PRIVATELY, SECOND QUARTER, 1943

Company & Issue (A)	Coupon Rate (B) %	Principle Amount (C)	Maturity Date (D)	Month of Offering (E)	Offering Price (F) %	Offering Yield (G) %
Superior Water, Lt.&Pr. Co. 1st Mortgage	3½	\$2,500,000	1973	April	100.45	3.35
Superior Water, Lt.&Pr. Co. S.F. Debentures	4	1,000,000	1958	April	100.00	4.00
Hingham Water Co. 20-Year Notes	3¾	450,000	1963	June	103.50	3.12
Iowa Continental Tel Co. 10-Year Notes	5¼	250,000	1953	June	¹	¹
Total or Weighted average		\$4,200,000	—	—	100.68 ²	3.49 ²

¹ Not available.² Excluding issue for which offering price is not available.

Company first mortgage 4¼'s of 1972, totalling \$52,000,000 and sold at 104¼ to yield 4%. This is an unusually high yield for a public utility offering of this size. Because of it, the weighted average yield of publicly sold issues was higher than for any quarter since 1938. The second issue, offered by the Public Service Company of Indiana, sold on a much lower yield basis, 3.16%.

Table II lists four bond issues sold privately during the quarter. Offering yields on these issues varied from 3.12% to 4.00%. The total volume of issues in this classification was only \$4,200,000.

A preferred stock issue and a serial issue complete the quarter's financing. Washing-

ton Gas Light Company offered 21,024 shares of \$5 preferred stock, no par, at \$100 per share. This is the first utility preferred stock offering since September, 1942. The serial issue was a \$750,000 offering of 3% serial notes by the New Bedford Gas and Edison Light Company sold privately to a group of insurance companies at 102.44%.

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Book Review Department



The Farmer Citizen at War. By Howard R. Tolley. New York: The Macmillan Company, 1943. pp. xi, 318. \$2.50.
Howard Tolley's friends, and many others

who have had only casual contacts with him as bureaucrat and public official, will thoroughly enjoy this book, and it can be commended to others. It is the response to a long-repressed urge to set forth his philosophy of democracy. He "lets himself go" as few have heard him do. Starting with a text from I Corinthians, he preaches a series of inspiring sermons, suffused with a glow.

The avowed purpose is to document the belief that "... the enlistment of the full energy of a people" needed to win the war and maintain the peace "... can be done best through the democratic ways worked out here," and to reveal "... the powerful reserves of energy that democracy supplies." (p. 3) "If the citizenry are to participate fully in the war effort, they need to agree wholeheartedly, with no reservations whatever, that the effort is worthwhile. And for such agreement, such full consent, they must understand what is expected of them; they must feel that sacrifices are being made by all alike, and they must have definite jobs to do to help win the war." (p. 7)

More specifically, "this book is a discussion of a decade of government efforts, dictated by the very nature of the difficulties of 1932-33, to grapple for the first time on any big scale with some of the major problems of democracy ... to show how the painfully learned lessons of those years may enable democracy to meet the challenge of the present and of the future. ..." (p. 30) As leader in the AAA and the BAE, almost continuously engaged in these tasks, Tolley writes out of rich personal experience.

Here is a competent insider's account of

the federal, state and county agricultural agencies, and "the grass-roots planning organization" known as the community agricultural planning committee. Readers of this *Journal* will welcome the account of the evolution of that organization and its procedure as presented in Chapter III, and will find especially appealing the case studies summarized in Chapter V. I found this illuminating chapter quite the best.

Critical notes in the glowing accounts are rare, and opportunities obvious to the informed reader are typically passed over. An exception is found in Chapter IV, "Pressure Groups," in which he writes: "... it is a very real danger to democracy and good government if any private organization actually does assume a possessive attitude to a public agency, if it does seek to influence unduly the actions of a public agency. Never has this danger taken more ominous shapes than now." (pp. 113-14) The reference is to the relations of the Farm Bureaus and their Federation to county agents and the Extension Service.

The impression is given that the farm relief and uplift system built during the 1930's was readily adaptable to the very different demands of wartime, and almost no hint is given of any baneful carry-overs in the past two years. Apparently these were not in the author's perspective as he wrote. The book does not pretend to be a calm appraisal, and it lacks "that metallic virtue, objectivity," of which the author makes scornful mention at one point. (pp. 239-40)

Chapter VI is devoted to the "underprivileged" third, or half, of the families in agriculture, some causes and some remedies. Here the author is often more superficial than penetrating. I cannot feel content with such assertions as these: "The nation has learned how to produce almost anything well. But it has not learned how to distribute the things we produce." (p. 181) Among "the fundamental forces pushing down upon agriculture" are "the dominance of the industrial business idea ... involving, among other things, the loss of export markets for American agricultural prod-

ucts." (p. 189) Yet the chapter makes useful contributions.

The long, conglomerate Chapter VIII, "The Managerial vs. the People's Revolution," struck me as the least satisfactory in the book. Interrogation points may well stud its margins. Mr. Tolley refers to "the vice of expertism," "a world of gadgets," "the triumphs of the specialists, and . . . their failures," which "in peace has bred war." (pp. 227-28) He refers to the danger that "in a world as complex as today's, . . . that complexity itself will give the average man . . . a mass inferiority complex." (p. 228) "Physical civilization has been moving too fast for men and institutions to keep up with it." (p. 232) His classification of agricultural economists leaves much to be desired, even if some of its barbed shafts strike home usefully.

Mr. Tolley apparently sought to bring out "the error into which experts would lead people if experts alone could wield power, and . . . ways in which the citizen and the expert can team up to guide each other." (p. 270) The key to his conclusions is doubtless in these sentences: "Democratic government demands that the citizen be a full partner with technician and administrator in the consultations and decision-making of the governmental process." (p. 238) "The part that American farm men and women have taken in molding agricultural policy and action has contributed materially to the more beneficial operation of public programs. In addition, it has also contributed valuably to the health of American democracy." (p. 239) "But if it is important for the average man to understand the ramified ways in which experts can change the course of his daily life, then it is equally important to the expert . . . that he understand fully the perilous pathway upon which he sets out when he is indifferent to the democratic tenets." (p. 267)

Chapter IX, "A Democratic Peace," is a fitting sermon with which to close the series. Several statements deserve questioning; the blueprint for agriculture and the nation is not so clear or so well-rounded as one might wish; and more critical discrimination would enhance its value in my eyes. Yet

its spirit is commendable and its ideas are stimulating and challenging.

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Redirecting Farm Policy. By Theodore W. Schultz. New York: The Macmillan Company, 1943. pp. vii, 75. \$1.00.

Here is a stimulating and readable book by a young man who, in a relatively short span of years, has attained a place of prominence in the field of agricultural economics. It presents an elaboration of the author's earlier proposal, which has come to be identified by the designation "necessary price." His thesis is that the government should establish agricultural prices at levels which will bring forth the desired outputs of different products. Where more of a given commodity is desired, price will be increased; if production needs to be curtailed, price will be lowered. Prices are to be "forward prices"; that is, they are to be established for periods in advance as guides for farmers in determining their production plans.

Professor Schultz is critical of the price policies represented by agricultural adjustment programs under which prices have been used as parity goals rather than as production directives. The programs have made parity price the end and production adjustment the means. Dr. Schultz desires to reverse this in order to make the allocation of resources (i.e. production adjustment) the end and to make the price the means of its attainment.

He suggests that "while it is easy to demonstrate that prices are not appropriate as goals, it is much more difficult to get at the reasons why people generally are disposed to believe the contrary." (p. 11) Are not the reasons rather obvious? An important function of price is income distribution. Individuals and groups have a selfish interest in enlarging their share in income by raising

the prices for their goods and services. This has a more specific appeal than that of resource allocation. They support price programs on this basis. The protective tariff, minimum wages, so-called fair trade laws, and the wages and hours act suggest that there is nothing novel about the aim of the agricultural adjustment act to increase farm income by raising prices.

Dr. Schultz does an effective job in presenting the case for directing farm production by government administered prices. He does not do as much for the income-distribution function of price, although a final short chapter presents some proposals regarding the income aspects of the problem. The author holds that "the price mechanism is not an appropriate means for supplementing the incomes of farm families" and that this "must be approached as a separate and additional problem to that of managing production." (p. 65) He suggests that "a population policy is probably the key for unlocking the low-income problem."

A belief of some popularity holds that criticism of a program is not constructive unless it presents a substitute which is an improvement. This may have been a factor in leading the author to couple criticism of the present program with a proposal which calls for a decided change in basic philosophy. The job of pointing out weaknesses in existing programs has been approached more realistically than that of proposing a substitute.

The suggested program assumes continued active participation by government in arriving at farm prices. While there is reason to believe that this is not too far-fetched, should not advocates of programs involving extension of such participation give careful consideration to possible effects on our form of government?

The determination of "necessary" prices may not be quite as simple as it seems, even in the seclusion of the statistical laboratory. Government workers, after all, are only human beings and not creatures endowed with omniscience. At best, considerable reliance would have to be placed on trial and error. The real stumbling block, however, is that such programs cannot be operated under the controlled conditions of the laboratory. This fact raises the major question regarding the workability of the proposal.

Under what degree of freedom will the administrators be permitted to operate?

We have a long record of governmental action to modify price in order to affect income distribution. It is expecting a lot to hope that people will make the drastic change in their thinking which is necessary for the adoption of the idea presented by Schultz that price adjustment should be made by the government to affect production rather than income. He uses the raising of price on soybeans as an illustration of the way to get expanded output. Unfortunately, we do not have a record of corresponding governmental action to lower cotton prices in order to discourage the use of resources in its production.

Past experience does not suggest too strong a prospect that such a program would be welcomed. Grain growers did not object to having the Farm Board buy wheat to strengthen price; they did object to its subsequent sale. Price-supporting loans under the AAA started out with some degree of flexibility but congressional mandate soon linked loan values rigidly to parity. Limitations on the minima for price ceilings and efforts to change the formula in order to increase parity prices are still fresh in mind. Tariff history supplies strong evidence that it is easier to raise than to lower rates.

Dr. Schultz clearly points out that these show weaknesses of programs which use price to affect incomes. Unfortunately, they also suggest some difficult hurdles to overcome before administrative flexibility essential to a satisfactory program of necessary prices can be attained. Such prices may be designated as directives rather than goals. They still will play a part in income distribution. Skepticism regarding the readiness of pressure groups to keep hands off seems warranted. This aspect of the problem deserves more consideration than is given to it by the author. This does not mean that the volume under review is not a very worthwhile contribution to the literature on agricultural policy. It deserves most careful reading and study.

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American Agriculture, 1899-1939: A Study of Output, Employment and Productivity. By Harold Barger and Hans H. Landsberg. New York: National Bureau of Economic Research, Inc., 1942. pp. 435. \$3.00.

This volume is primarily a digest of statistical information and analysis pertaining to employment and production in American agriculture. It is evidently designed to round out the Bureau's field of analysis and is considered as a companion piece to Fabricant's recent works on manufacturing industries. The "aims" of the book are stated: "to assemble indexes of total agricultural output and its constituent parts, to explain their movements as well as the shifting pattern of output, and finally to compare the behavior of output with changes in the volume of agricultural employment." The principal sources are familiar: the census, the findings of the National Research Project on changing techniques and employment in agriculture culminating in the report of John A. Hopkins—"Changing Technology and Employment in Agriculture" (Bureau of Agricultural Economics, 1941), and a wide array of studies by the United States Department of Agriculture and the Agricultural Experiment Stations. The basic studies in all pertinent phases of agriculture are reviewed and criticized, and new indexes of output, employment and productivity are computed.

The development of the new index of agricultural output is given more space than any other topic, and may be the principal contribution of the study. The aggregate index is constructed from physical production data, weighted according to constant dollar values. The assignment of weights according to (standardized) market values requires that those portions of crops used as feed or seed be excluded from the index of output. Thus, the measures of output for the principal feed crops, such as hay and corn, do not reflect changes in physical production, but rather in the portion of the crop sold to the nonagricultural sections of

the economy. Annual changes in inventories of crops and livestock on farms are also allowed for in the computations of indexes.

This study is so similar to the one of "Changing Techniques and Employment in Agriculture" by the National Research Project that readers familiar with the latter will likely be comparing the two as they study the present volume. An interesting methodological issue is presented by the similarity of performance of the indexes of output arrived at by completely different methods of weighting. Hopkins and his associates used hours of labor required for different tasks in production as relative weights. The NBER study uses constant dollar values. Yet the results are very similar. Barger and Landsberg observe: "Differences between our index and the National Research Project index¹ remain within 5 percentage points but are hard to track down since they are due to differences not only in data but also in weights. Indeed, it must be considered astonishing that the use of an entirely different weighting system—man hours per unit instead of value per unit—results in an index which reports very similar movements for the period as a whole" (Appendix C, Comparisons with Other Indexes, p. 406). This is a point which statisticians will likely desire to explore further.

Taking agriculture as a whole, the authors find an annual increase in total production of one per cent per year for the 40-year period. The greatest increases have occurred in citrus fruits and dairy products. (Data are inadequate for computation of this long-time trend in the production of tree nuts and truck crops.)

Computations of the trends of production are shown separately for the 18-year periods preceding and following the first World War. The annual rate of growth for 1921-1938 was only 0.5% compared to 1.5% for the period, 1897-1914. This computation of separate trends for the two periods suggests that a third set of trends will be involved in agricultural production after the present war. If so, the practical value of the elab-

¹ Given in R. G. Bressler and J. A. Hopkins. "Trends in Size and Production of the Aggregate Farm Enterprise: 1909-1936" (Philadelphia 1938), Table 4.

orate computations of trends in this study in anticipating future developments would appear to be slight.

A more absolute measure of the food portion of agricultural production is attempted in Chapter 4. The authors appraise the present production of food values as to both source and nutritional adequacy in terms of calories, vitamins, and minerals. This digest of nutritional research concludes with the observations that our people are not adequately fed and that the trend away from cereals and potatoes toward dairy products, fruits and vegetables should be encouraged. The chapter deals with the food problem in terms of natural relationships and categories rather than the relative categories of trends and indexes. It is not integrated into the remainder of the study beyond general conclusions of the order referred to above.

The analysis of employment in agriculture (Chapter 6) reviews critically the census enumerations of the gainfully employed as well as other measures of employment. The Shaw-Hopkins estimates are evaluated partly in the light of information made available by the census in 1942 (Table 33, page 237). The Bureau of Agricultural Economics estimates of agricultural employment, based upon the crop reporter series on family workers and hired workers, are held to have a substantial upward bias, at least in recent years (page 224). Any one attempting to use currently available information on farm employment may profit from this evaluation.

In the final chapter the authors attempt to evaluate the whole analysis and anticipate the trend of the future. They anticipate the continued relative decline in persons engaged in farming. The question is argued from several viewpoints but stands virtually independent of the analytical parts of the book. Director Noyes of the Bureau takes sharp issue with the authors in a dissenting opinion presented as a long footnote to the conclusion. His chief criticism is that the authors have confused the issues by lumping together the agricultural development of this country, which is basically an occupation of a virgin continent, and its industrial development, which is a part of the greater and unique industrial revolution. For this reason, he is especially critical of

the authors' projected decline in relative farm population in terms of relationships found during the past 40 years.

Viewed in the large, the value of the present study will probably depend upon whether or not it influences statistical research in the general economics of agriculture. It is not a book filled with insight into American agriculture but rather is primarily a general analysis based upon available statistics. Most workers in agricultural economics may well find it full of information without being very informative. However, research workers upon a particular phase covered in this study will be wise to read the relevant portions with extreme care.

The general limitations of the book are thus the defects of its qualities. For most purposes, statistical analyses are hand-maidens to other methods of study which deal with the great questions of historical development, social organization, and the issues in valuation. Guidance for policy must come from primary analyses of the latter magnitudes in which statistical trends are evaluated as consequences of antecedent events and purposes; and the social trends of the future will not be independent of social policies and the collective wills of mankind.

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The Northern Plains in a World of Change.

By Carl F. Kraenzel, Watson Thomas, and Glenn H. Craig. Canada: Gregory-Cartwright, 1942. pp. 190.

The problems of the Northern Great Plains have not been slighted in the past ten years, but here is a document on the subject which deserves an extra amount of attention. It is "a study outline for adult groups in the Northern Plains of Canada and the United States." The report is written by professors at Montana State College and the University of Manitoba with the col-

laboration of other American and Canadian experts; it is sponsored by the Canadian Association for Adult Education and the Northern Great Plains Agricultural Advisory Council; and in its preliminary form it was the subject of discussion at a conference of leaders from the Great Plains states and provinces.

There is no pussy-footing in this publication. The case for aggressive planning is set forth simply and courageously. The point of view is not conservative. If this study outline is really used among adult education groups, as it is designed to be, one would certainly expect it to make a real impression on the thinking of the people of the Plains.

The report makes a strong appeal for social cooperation at the international, regional, and community levels of human activity. Selfish individualism, provincialism, and national isolationism are denounced.

The unique physical and historical features of the Great Plains are outlined briefly but sufficiently to establish the case for a regional approach to Northern Great Plains problems. The central thesis is that the environment is such as to require an unusually long time for human relationships to become properly adjusted to it. And now the overwhelming changes induced by modern technology and global affairs make the problems of adaptation all the more complex, yet even more necessary. Therefore, the frontier of the region still remains, but it is "not the frontier of unexplored spaces but the beckoning horizon of new ideas."

The report stresses the fundamental importance of property in land as the key to planning for the area. Perhaps the authors would insist that this emphasis on property control is required by the peculiar characteristics of the region. It might be, however, that similar emphasis might be given to problems of agricultural policy elsewhere if they were probed deeply enough. At any

rate, land economists and agricultural economists outside of the Plains region ought to read this report carefully on this issue, at least for the analysis if not for the recommendations.

As for recommended policies, the study outline is again quite forthright. Some of the policies which are advocated are neither original nor regional, such as the disregard of public debt limits and the free use of the term "full employment" as if it were an end in itself. For the Plains the suggestions are more novel and, in many respects, visionary. The report suggests the need for concentration of settlement and for the building of closer human association patterns in the social and financial affairs of the region. This change would involve settlement near to water sources, improved medical and educational facilities, new local industries, and strong community and regional cooperative organizations.

The agricultural resources pattern would, in the picture of the future, be drastically altered. Cooperative control over land use and a decrease in private land ownership are suggested as means of reducing individual risk, achieving area diversification of enterprises, obtaining efficient use of machinery and equipment, conserving the soil, attracting capital, and finally, the most important, taking the farmers off the treadmill of attempting to buy full individual farm ownership.

Everyone who reads this document should be able to find some or many things in it that he doesn't like. But that only adds to the virtues of the bulletin: it was issued, apparently, to stimulate debate. And it would be well for a large number of people to get in on the discussion. The authors deserve high commendation for their willingness to serve as the pin-setters.

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